OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION

MEMORANDUM **June 6, 2018**

TO: Phillip Fielder, P.E., Permits and Engineering Group Manager

THROUGH: Phil Martin, P.E., Manager, Existing Source Permits Section

THROUGH: Amalia Talty, P.E., Existing Source Permits Section

FROM: Ryan Buntyn, P.E., Existing Source Permits Section

SUBJECT: Evaluation of Permit Application No. **2012-672-C (M-7) PSD**
McAlester Army Ammunition Plant (MCAAP) (Facility ID 923)
Ammunition Manufacturing Facility
The facility covers large parts of T4N and T5N, R12E through R14E, Pittsburg County. The main entrance is near 34.8381°N, 95.8413°W.
Directions: From the intersection of US 69 and the Indian Nations Turnpike, travel two miles southwest on US 69 to facility on right (northwest).

SECTION I. INTRODUCTION

McAlester Army Ammunition Plant (MCAAP) has applied for a Part 70 PSD construction permit for their Ammunition Manufacturing Facility (SIC Code 9711). The facility is currently operating under Permit No. 2012-672-TVR (M-11) issued February 12, 2018.

The applicant requests authorization to allow the static firing of an additional type of rocket motor. The new rocket motors are from missiles that use a lead-based propellant. On October 13, 2016, MCAAP submitted an applicability determination [Permit No. 2012-672-AD (M-6)] requesting the Department of Environmental Quality (DEQ) make a determination as to whether the proposed modification meets the definition of Prevention of Significant Deterioration (PSD) major modification as defined in OAC 252:100-8 or if the modification can be completed as a modification to the current operating permit. A previous applicability determination [Permit No. 99-112-AD (M-6)] was issued to MCAAP on May 20, 2013, concluding that static firing of a different rocket motor (Maverick rockets) with substantially different propellant composition constitutes a change in method of operation as defined in OAC 252:100-8-31. Based on this decision, Permit No. 2012-672-AD (M-6) determined that this project would also constitute a change in method of operation and a Part 70 PSD construction permit would be required. MCAAP is an existing major stationary source under Oklahoma's PSD preconstruction permitting program. The static firing of the additional proposed rocket motors constitutes a major modification under the PSD permitting program for emissions of lead. Emission increases of PM_{10}, $PM_{2.5}$, carbon monoxide (CO), nitrogen oxides (NO_X), sulfur dioxide (SO_2), and greenhouse gasses (GHG as CO_2e) will not exceed the PSD significance emission rate thresholds.

Since the facility emits more than 100 TPY of a regulated pollutant, it is subject to Title V permitting requirements. Emission units (EUs) have been arranged into Emission Unit Groups (EUGs) in section VIII.

SECTION II. PERMIT HISTORY

The 44,965-acre facility was established in 1942 as the McAlester Naval Ammunition Depot. It became an Army Installation in 1977 and is currently a US Army Materiel Command (AMC) facility. Because MCAAP began operations in 1943, it continues to operate largely as a "grandfathered" facility, except for permit limits that are a result of facility modifications. Emission units constructed or significantly modified since 1972 are not considered grandfathered and are subject to the limitations established. An extensive listing of permits and Applicability Determinations (ADs) issued to the facility is available in Permit 99-112-TV (M-1) and is not repeated here, because the terms of all previous permits and ADs are included in this Part 70 operating permit.

SECTION III. PSD APPLICABILITY REVIEW

MCAAP is considered a PSD Major Source since total facility emissions are permitted to exceed 250 TPY (each) of three pollutants including NO_X, PM, and VOC. Therefore, any modification (physical or operational change that could increase any regulated pollutant) must be evaluated under PSD rules.

The emissions increases associated with the proposed project are reviewed for PSD permitting applicability per OAC 252:100-8-30. In accordance with OAC 252:100-8-30(b)(1)(A), a project is a major modification for a regulated New Source Review (NSR) pollutant if it causes two types of emissions increases: a significant emissions increase and a significant net emissions increase. Thus, following is the first step in determining if a project would be considered a major modification and subject to PSD review.

Determine Emissions Increases

1. Emission Increase - Calculate the emissions increases and compare to PSD significant emission rate thresholds.

OAC 252:100-8-30(b)(3) through (6) describes the test methods for determining if significant emission increases have occurred.

> (3) ***Actual-to-projected-actual applicability test for projects that only involve existing emissions units.*** A significant emissions increase of a regulated NSR pollutant is projected to occur if the sum of the difference between the projected actual emissions and the baseline actual emissions for each existing emissions unit, equals or exceeds the amount that is significant for that pollutant.
>
> (4) ***Actual-to-potential test for projects that only involve construction of a new emissions unit(s).*** A significant emissions increase of a regulated NSR pollutant is projected to occur if the sum of the difference between the potential to emit from each new emissions unit following completion of the project and the baseline actual emissions of these units before the project equals or exceeds the amount that is significant for that pollutant.
>
> (5) ***Hybrid test for projects that involve multiple types of emissions units.*** A significant emissions increase of a regulated NSR pollutant is projected to occur if the sum of the emissions increases for each emissions unit, using the method specified in OAC 252:100-

8- 30(b)(3) or (4) as applicable with respect to each emissions unit, for each type of emissions unit equals or exceeds the amount that is significant for that pollutant.

(6) ***Actual-to-potential test for projects that only involve existing emissions units.*** In lieu of using the actual-to-projected-actual test, owners or operators may choose to use the actual-to-potential test to determine if a significant emissions increase of a regulated NSR pollutant will result from a proposed project. A significant emissions increase of a regulated NSR pollutant will occur if the sum of the difference between the potential emissions and the baseline actual emissions for each existing emissions unit, equals or exceeds the amount that is significant for that pollutant. Owners or operators who use the actual to potential test will not be subject to the recordkeeping requirements in OAC 252:100-8-36.2(c).

For the purposes of this project, which involves modifications to the existing static firing source at the facility, MCAAP is utilizing the actual-to-potential test for projects that only involve existing emissions units.

Determine Net Emissions Increases

Emissions netting is a term that refers to the process of considering certain previous and prospective emissions changes at an existing major source to determine the total net emissions increase of a pollutant that will result from a proposed physical change or change in the method of operation. A PSD netting analysis is performed based on suggested emissions netting procedures in the EPA's Draft New Source Review Workshop Manual and the NSR Revisions published in the OAC. The following five additional steps are used for determining if the net emissions change is significant.

2. Contemporaneous Period - Determine the beginning and ending dates of the contemporaneous period as it relates to the project.

3. Emissions Increases and Decreases During the Contemporaneous Period - Determine which emissions units at the facility experienced or will experience a credible increase or decrease in emissions during the contemporaneous period. This step also includes any emissions decreases from the project.

4. Creditable Emissions Changes - Determine which contemporaneous emissions changes are creditable.

5. Amount of Emissions Increases and Decreases - Determine, on a pollutant-by-pollutant basis, the amount of each contemporaneous and creditable emissions increase and decrease.

6. PSD Applicability Review - Sum all contemporaneous and creditable increases and decreases with the emissions changes from the project to determine if a significant net emissions increase will occur.

Actual emissions are defined in OAC252:100-8-31 as:
the actual rate of emissions of a regulated NSR pollutant from an emissions unit, as determined in accordance with paragraphs (A) through (C) of this definition, 75 except that this definition shall not apply for calculating whether a significant emissions increase has occurred, or for establishing a PAL under OAC 252:100-8-38. Instead, the definitions of "projected actual emissions" and "baseline actual emissions" shall apply for those purposes.

(A) In general, actual emissions as of a particular date shall equal the average rate in TPY at which the unit actually emitted the pollutant during a consecutive 24-month period which precedes the particular date and which is representative of normal source operation. The Director shall allow the use of a different time period upon a determination that it is more representative of normal source operation. Actual emissions shall be calculated using the unit's actual operating hours, production rates, and types of materials processed, stored, or combusted during the selected time period.

(B) The Director may presume that source-specific allowable emissions for the unit are equivalent to the actual emissions of the unit.

(C) For any emissions unit that has not begun normal operations on the particular date, actual emissions shall equal the potential to emit of the unit on that date.

Baseline actual emissions are defined as OAC252:100-8-31 as:
The rate of emissions, in TPY, of a regulated NSR pollutant, as determined in accordance with paragraphs (A) through (E) of this definition.

(A) The baseline actual emissions shall be based on current emissions data and the unit's utilization during the period chosen. Current emission data means the most current and accurate emission factors available and could include emissions used in the source's latest permit or permit application, the most recent CEM data, stack test data, manufacturer's data, mass balance, engineering calculations, and other emission factors.

(C) For an existing emissions unit (other than an EUSGU), baseline actual emissions means the average rate in TPY, at which the emissions unit actually emitted the pollutant during any consecutive 24-month period selected by the owner or operator within the 10- year period immediately preceding either the date the owner or operator begins actual construction of the project, or the date a complete permit application is received by the Director for a permit required either under this Part or under a plan approved by the Administrator, whichever is earlier, except that the 10 year period shall not include any period earlier than November 15, 1990.

(i) The average rate shall include fugitive emissions to the extent quantifiable, and emissions associated with startups, shutdowns, and malfunctions.

(ii) The average rate shall be adjusted downward to exclude any noncompliant emissions that occurred while the source was operating above an emission limitation that was legally enforceable during the consecutive 24-month period.

(iii) The average rate shall be adjusted downward to exclude any emissions that would have exceeded an emission limitation with which the major stationary source must currently comply, had such major stationary source been required to comply with such limitations during the consecutive 24-month period. However, if an emission limitation is part of a MACT standard that the Administrator proposed or promulgated under 40 CFR 63, the baseline actual emissions need only be adjusted if DEQ has taken credit for such emissions reduction in an attainment demonstration or maintenance plan consistent with requirements of 40 CFR 51.165(a)(3)(ii)(G).

(iv) For a regulated NSR pollutant, when a project involves multiple emissions units, only one consecutive 24-month period must be used to determine the baseline actual emissions for the emissions units being changed. A different consecutive 24-month period can be used for each regulated NSR pollutant.

(v) The average rate shall not be based on any consecutive 24-month period for which there is inadequate information for determining annual emissions, in TPY, and for adjusting this amount if required by (C)(ii) and (iii) of this definition.

(D) For a new emissions unit, the baseline actual emissions for purposes of determining the emissions increase that will result from the initial construction and operation of such unit shall equal zero; and thereafter, for all other purposes, shall equal the unit's potential to emit.

Historical emissions from sources affected by the projects included in this permit have been calculated from representative historical data. The baseline actual emissions for the projects included in this permit are based on the most representative operating data for a consecutive 24-month period during the previous ten years. As allowed in OAC 252:100-31, MCAAP has chosen to use different consecutive 24-month periods to establish baseline emissions. For CO emissions, the operating data for the period of January 2008 through December 2009 was used. For PM_{10} emissions, the operating data from January 2009 through December 2010 was used to calculate baseline emissions. No historical emissions data is available for NO_X, SO_2, lead and CO_2e. For these NSR regulated pollutants, baseline actual emissions are assumed to be zero.

Potential to emit is defined in OAC252:100-31 as:
The maximum capacity of a stationary source to emit a pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is enforceable. Secondary emissions do not count in determining the potential to emit of a stationary source.

Emissions Increases from the Project
The emissions increases from this project are calculated on a pollutant-by-pollutant basis. These increases include both project emissions and emissions from any source associated with the project. Emission decreases are not considered in this step.

Static Firing Emissions - Estimated potential emissions for the new rocket motors are based on emissions factors provided by the manufacturer and the known composition of the propellant contained in each type of rocket motor. These emissions are considered alongside the existing static firing emissions to determine the new potential-to-emit for EUG5P. The emissions in the following table are based on maximum operational capacity of the static firing stands.

Associated Emission Units - No associated emissions increases are expected from this project. No emissions units are being added or removed as part of this permit. Static firing of the alternative rocket motors will not result in an increased utilization of any other emissions units at the facility; therefore, no associated emissions increases will occur as a result of this modification.

The following table summarizes the project emissions increases for the modified source. Potential emissions are based off manufacturer's data, reflect the known composition of the MK12 rocket motors and the maximum number of rockets that can be fired in a year, three rockets per day and 366 days per year. The MK12 rocket motors represent the worst case rocket motors for lead, NOx, PM, and CO_2e; other rocket motors containing lead may be fired at the facility. HAWK rocket motors represent the worst case rocket motors for CO. Maverick rocket motors represent the worst case rocket motors for SO_2.

MK12 Potential Emissions

Rocket Motor	Units	CO	NO_X	PM_{10}	$PM_{2.5}$	SO_2	Lead	CO_2e
MK12	lb/rocket	0.3788	8.7012	55.49896	55.49896	0.0000105	18.70355	170.0103
	lb/day	1.14	26.10	166.50	166.50	0.01	56.11	510.03
	lb/year	416.01	9,553.92	60,937.86	60,937.86	0.11	20,536.50	186,671.31
	TPY	0.21	4.78	30.47	30.47	0.01	10.27	93.34

The previous table shows that the total project potential emissions are greater than PSD SERs for PM_{10}, $PM_{2.5}$, and lead.

Emission Increases

	CO (TPY)	NO_X (TPY)	PM_{10} (TPY)	$PM_{2.5}$ (TPY)	SO_2 (TPY)	Lead (TPY)	CO_2e (TPY)
Baseline Emissions	6.43	0.00	9.41	9.41	0.00	0.00	0.00
Maximum Potential Emissions	41.50[a]	4.78[b]	24.40[c]	19.40[d]	32.00[e]	6.54[f]	93.34[b]
Project Emission Increases	35.07	4.78	14.99	9.99	32.00	6.54	93.34
PSD SER (TPY)	100	40	15	10	40	0.6	75,000
PSD Analysis?	**No**	**No**	**No**	**No**	**No**	**Yes**	**No**

[a] - Maximum CO emissions are based off potential emissions from the HAWK missiles;

[b] - Maximum emissions are based off potential emissions from the MK12 missiles;

[c] - MCAAP proposes to take a limit of 24.40 TPY of PM_{10} to avoid PSD review;

[d] - MCAAP proposes to take a limit of 19.40 TPY of $PM_{2.5}$ to avoid PSD review.

[e] - Maximum SO_2 emissions are based off potential emissions from the Maverick missiles;

[f] - Based on $PM_{2.5}$ limitations, Pb emissions are reduced for the number of MK12's that may be fired.

The previous table shows the total project emissions increases, taking into account baseline actual emissions and a PM_{10} emission limit of 24.40 TPY and a $PM_{2.5}$ emission limit of 19.40 TPY, are greater than PSD SER for only lead. CO baseline emissions are based off operational data from January 2008 to December 2009 and PM baseline emissions are based off operational data from January 2009 to December 2010. Baseline emissions are based off DEQ Air Emission Inventories. There was no historical data available for NO_X, SO_2, lead, or CO_2e. MCAAP will show compliance with PM_{10} and $PM_{2.5}$ limits by calculation emissions monthly and as a 12-month rolling total.

PSD Review

The proposed project is subject to PSD review for lead because the sum of all contemporaneous creditable emissions increases and decreases results in a significant net emissions increase.

SECTION IV. BACT ANALYSIS OUTLINE

As required by OAC252:100-7-15(c)(1), OAC252:100-8-5(d)(1)(A) and 40 CFR 52.21, MCAAP conducted a BACT analysis for the emissions associated with the proposed static firing modification that exceeded the PSD SER. As shown in the previous table, emissions of lead exceed the PSD SER for this project.

BACT is defined in OAC252:100-1-3 as:
an emissions limitation (including a visible emissions standard) based on the maximum degree of reduction for each regulated NSR pollutant which would be emitted from any proposed major stationary source or major modification which the Director, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combination techniques for control of such pollutant. In no event shall application of BACT result in emissions of any pollutant which would exceed the emissions allowed by any applicable standard under 40 CFR parts 60 and 61. If the Director determines that technological or economic limitations on the application of measurement methodology to a particular emissions unit would make the imposition of an emissions standard infeasible, a design, equipment, work practice, operational standard or combination thereof, may be prescribed instead to satisfy the requirement for the application of BACT. Such standard shall, to the degree possible, set forth the emissions reduction achievable by implementation of such design, equipment, work practice or operation, and shall provide for compliance by means which achieve equivalent results.

The following methodology for performing a top-down BACT analysis has been developed from the US EPA's Draft NSR Workshop manual. The analysis utilizes five key steps to identify the most suited BACT option for the project. The first step in this approach is to determine, for the emission unit in question, the most stringent control available for a similar or identical source or source category. If it is shown that this level of control is technically, environmentally, or economically infeasible for the unit in question, then the next most stringent level of control is determined and similarly evaluated. This process continues until the BACT level under consideration cannot be eliminated by any substantial or unique technical, environmental, or economic objections.

Step 1 - Identify Available Control Technologies
Available control technologies are identified for each unit in question. The following methods are used to identify potential technologies: 1) querying the Reasonably Available Control Technology (RACT)/BACT/Lowest Achievable Emission Rate (LAER) Clearinghouse (RBLC) database, 2) surveying regulatory agencies, 3) drawing from previous engineering experience, 4) surveying air pollution control equipment vendors, and 5) reviewing available literature.

Step 2 - Eliminate Technically Infeasible Options
After the identification of control options, an analysis is conducted to eliminate technically infeasible options. A control option is eliminated from consideration if there are process-specific conditions that prohibit the implementation of the control technology or if the highest control efficiency of the option would result in an emission level that is higher than any applicable regulatory limits, such as an NSPS.

Step 3 - Rank Remaining Control Options by Control Effectiveness
Once technically infeasible options are removed from consideration, the remaining options are ranked based on their control effectiveness. If there is only one remaining option, or all of the remaining technologies could achieve equivalent control efficiencies, ranking based on control efficiency is not required.

Step 4 - Evaluate and Eliminate Control Technologies Based on Energy, Environmental, and Economic Impacts

Beginning with the most efficient control option in the ranking, detailed economic, energy, and environmental impact evaluations are performed. If a control option is determined to be economically feasible without adverse energy or environmental impacts, it is not necessary to evaluate the remaining options with lower control efficiencies.

The economic evaluation centers on the cost effectiveness of the control option. Costs of installing and operating control technologies are estimated following the methodologies outlined in the EPA's *OAQPS Control Cost Manual* (CCM) and other industry resources. Cost effectiveness is expressed as dollars per ton of pollutant controlled. Objective analysis of energy and environmental impacts associated with each option are also conducted. Both beneficial and adverse impacts are discussed and quantified.

Step 5 - Select BACT and Document the Selection as BACT

In the final step, one pollutant-specific control option is proposed as BACT for each emission unit under review. This control option is proposed based on technical, environmental, and economic evaluations from the previous step. Per OAC 252:100-1-3, BACT is imposed as an emission limitation (i.e., not a particular control technology) or other standard (e.g., work practice or design) if it is determined that an emission limitation is infeasible.

SECTION V. BACT ANALYSIS

Step 1 - Identify Available Control Technologies

The first step in the BACT analysis is to identify the possible control technologies for each applicable pollutant for comparable emissions sources. For most source types, the EPA's RBLC is the preferred reference. The following table lists commercially available controls for rocket demilitarization and rocket engine test firing. While there were no RBLC entries for the pollutant of concern, lead, it is reasonable to apply the listed control technologies.

All RBLC Listed Control Technologies

Control Technologies
Rocket Engine Test Fire • Good operating practices, liquid hydrogen/oxygen fuel whenever possible

It is important to note that while rocket engine test firing is not the same process as static firing, there are some similarities, namely the inability to safely control emissions associated with both processes. As stated in the pollutant compliance notes contained in one rocket engine test firing entry. The following comment is included in the pollutant compliance notes for the RBLC search results for Rocket Engine Test Firing (99.010) for the National Aeronautics Space Administration's (NASA) Permit No. 1000-00005 issued March 26, 2000:

"the emissions from rocket testing have been considered incontrollable due to the fact that most rocket engines emit larger quantities of combustion products for a relatively short period of time."

Good Operating Practices
Good operating practices for static firing operations include, but are not limited to, routine inspections and timely repairs of static firing equipment and only conducting operations during daylight hours when climatic conditions are acceptable.

Step 2 - Eliminate Technically Infeasible Options
The only control technology being considered is good operating practices, which is further considered in the following steps of the top-down BACT analysis.

Step 3 - Rank Control Technologies by Effectiveness
The following table lists the control technologies considered in order of decreasing emission reduction potential.

Ranking Control Technology Options

Rank	Option
1	Good Operating Practices

Step 4 - Evaluate Most Effective Control Option
No energy, environmental, or economic analysis was completed in the step as the impacts associated with good operation practices are expected to be minimal.

Step 5 - Select Lead BACT for Static Firing
Good operational practices have been selected as BACT for lead emissions associated with static firing of rocket motors. The resulting BACT standard is an emission limit unless technological or economic limitations of the measurement methodology would make the imposition of an emission standard infeasible, in which case a work practice or operating standard can be imposed. For the proposed modification, good operating practices and a lead BACT emission limit of 6.98 TPY for static firing operations, based on a 12-month rolling total, have been selected.

SECTION VI. AIR QUALITY DISPERSION MODELING ANALYSIS

Both the Federal PSD (40 CFR Part 52.21) and New Source Review (NSR) construction permit programs are incorporated in OAC 252:100-8. These programs require air dispersion modeling analysis be conducted to demonstrate compliance with and to protect the National Ambient Air Quality Standards (NAAQS) and PSD Increments in support of PSD construction permit applications. MCAAP has conducted an air dispersion modeling analysis for lead emissions associated with the requested modification to the static firing operations conducted at the facility.

Model Selection
EPA's American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD) (version 16216r) was used. The AERMOD model, a steady-state plume dispersion model used for assessment of pollutant concentrations from a variety of sources, has become the primary model used for conducting refined modeling analyses. AERMOD incorporates air dispersion based on planetary boundary layer turbulence structure and scaling concepts, including treatment of both surface and elevated sources, and both simple and complex terrain.

Terrain

Modeling with elevated terrain was used for this analysis. AERMAP (version 11103), a terrain preprocessor that incorporates complex terrain using U.S. Geological Survey (USGS) Digital Elevation Data was used to determine stack, building, and receptor elevations/hill heights. Elevations entered into the model were interpolated from USGS 7.5-minute digital elevation model (DEM) data of the area surrounding the facility.

Stack GEP Analysis & Building Downwash

Building wake effects on each emission point source were incorporated through the use of the BPIP-PRIME (version 04274) algorithm. BPIP-PRIME calculates all direction specific building data required by the air dispersion model to enable it to include the appropriate building downwash algorithm into the calculations. The structure dimensions are then imported into AERMOD on an emission point-specific basis. Building data used in the model is presented in the following tables.

RECTANGULAR BUILDING PARAMETERS

Description	X Coord (meters)	Y Coord (meters)	Elevation (meters)	Height (meters)	X Length (meters)	Y Length (meters)	Angle (degree)
Special Weapons	233,199.57	3,856,933.28	231.65	7.31	32.92	248.70	0
Demo Range Shelter	234,081.74	3,856,127.27	250.12	5.64	7.62	18.29	0
AT Magazine 1	234,325.02	3,855,191.30	231.88	5.79	7.62	24.38	40
AT Magazine 2	234,411.08	3,855,311.62	232.05	5.79	7.62	24.38	40
AT Magazine 3	234,497.70	3,855,432.07	231.20	5.79	7.62	24.38	40
AT Magazine 4	234,583.33	3,855,553.27	229.81	5.79	7.62	24.38	40
AT Magazine 5	234,669.08	3,855,672.94	228.60	5.79	7.62	24.38	40
AT Magazine 6	234,754.77	3,855,793.84	228.10	5.79	7.62	24.38	40

Polygon Building Parameters

Description	Elevation (meters)	Height (meters)	X Coord (meters)	Y Coord (meters)
NW Berm	240.79	3.25	233,738.90	3,856,190.90
			233,740.30	3,856,212.80
			233,776.40	3,856,207.30
			233,777.00	3,856,181.10
			233,771.50	3,856,181.10
			233,770.20	3,856,200.90
			233,746.50	3,856,204.00
			233,745.50	3,856,190.90
Center Berm	242.09	3.25	233,805.30	3,856,163.70
			233,828.50	3,856,170.20
			233,844.10	3,856,136.20
			233,823.00	3,856,127.90
			233,820.50	3,856,134.30
			233,834.20	3,856,139.20
			233,825.50	3,856,159.10
			233,810.30	3,856,155.00

SE Berm	243.45	3.25	233,836.90	3,856,088.70
			233,858.60	3,856,086.40
			233,857.30	3,856,050.60
			233,835.70	3,856,050.40
			233,835.30	3,856,056.50
			233,850.20	3,856,056.70
			233,851.40	3,856,080.20
			233,836.50	3,856,081.70

Meteorological Data

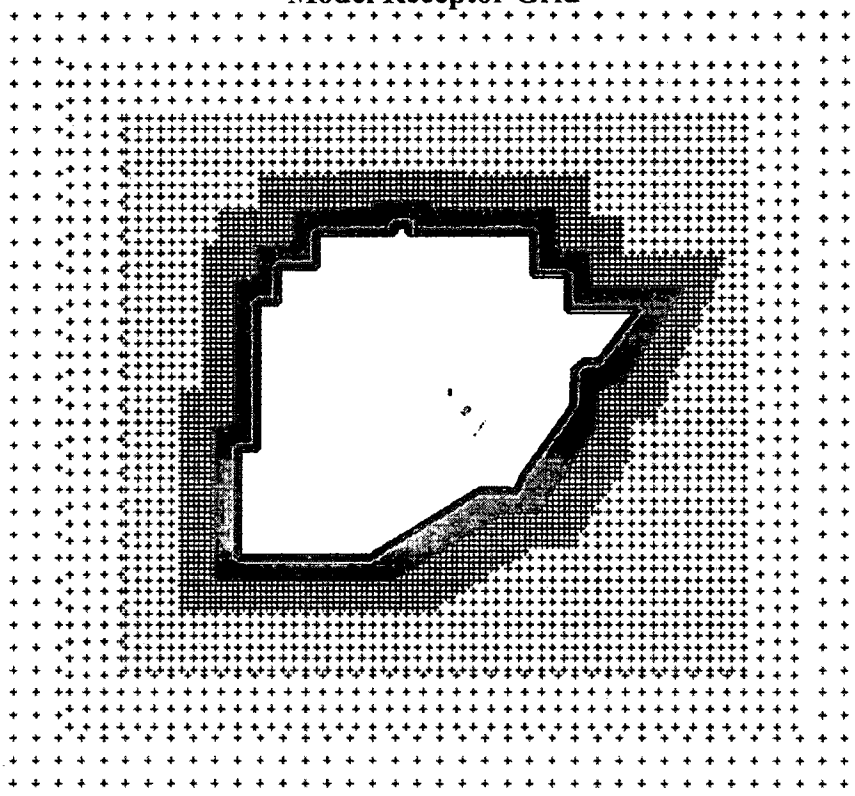
Pre-processed meteorological data (AERMET version 16216) was used for the modeling analysis. Integrated Surface Hourly (ISH) meteorological data from the McAlester Regional Airport (KMLC - Station # 93950) was provided for years 2011 through 2015. For all meteorological years (2011 to 2015), upper air data from the OU Max Westheimer Airport, (KOUN - Station # 3948) was used.

Receptor Grid

Ground-level concentrations are calculated for receptors located on five Cartesian grids covering a region that extends at least 10 km from all facility emission sources. The grid used for the modeling analysis is shown in the following table. The grids are defined as follows:

- A fence line grid containing 50 meter-spaced receptors located along the facility fence line.
- A 100-meter grid containing 100 meter-spaced receptors, extending approximately 1.0 km from the fence line, exclusive of the fence line grid.
- A 250-meter grid containing 250 meter-spaced receptors, extending approximately 2.5 km from the fence line, exclusive of the 100 meter grid.
- A 500-meter grid containing 500 meter-spaced receptors, extending approximately 5.0 km from the fence line, exclusive of the 250 meter grid.
- A 750-meter grid containing 750 meter-spaced receptors, extending approximately 7.5 km from the fence line, exclusive of the 500 meter grid.
- A 1,000-meter grid containing 1,000 meter-spaced receptors, extending approximately 10 km from the fence line, exclusive of the 750 meter grid.

Model Receptor Grid



Significance Analysis

A significant impact analysis is the first level of modeling performed in a PSD evaluation. For each applicable pollutant, the analysis must include all increases in stack emissions and quantifiable fugitive emissions resulting only from the project. There is no SIL for lead, so no significance analysis was performed. No further discussion of the significance analysis is included in this report.

Full Impact Analysis

A full impact analysis, typically consisting of a NAAQS analysis and a PSD Increment analysis, needs to be conducted for each pollutant with an ambient impact that exceeds a SIL. As discussed above, there is no PSD Class I or II Increment for lead; therefore, PSD Increment analyses were not performed and are not discussed further in this report.

NAAQS Analysis

Since there is no SIL for lead, the first step of the NAAQS Analysis of determining the Radius of Impact (ROI) cannot be performed. In order to develop an inventory of sources to include in the NAAQS analysis, MCAAP requested DEQ assist in developing an appropriate inventory. As determined by DEQ, the only sources of lead in the surrounding area are the open burning/open detonation (OB/OD) activities conducted by the facility.

To complete the NAAQS analysis, the emissions from the proposed static firing of the new rocket motors are modeled simultaneously with the emissions from the sources identified in the inventory. Because MCAAP is the only source of lead in the surrounding area and historical monitored lead concentrations were low enough to justify removal of the previously active lead monitor, no background concentrations have been included for comparison with the NAAQS.

The pollutant evaluated in the modeling analysis is lead. As discussed in the construction application submitted under separate cover, static firing operations are physically limited due to the number and configuration of the firing pads and time constraints associated with safely firing rocket motors. Modeling conducted for the proposed rocket motors is conservatively based on the assumption that up to six rocket motors may be fired in an eight-hour period during each day. For the purpose of this model, total daily emissions were evenly distributed across the modeled eight-hour period. Each static firing pad is represented in the modeling analysis as three volume sources evenly spaced starting at the actual firing pad and extending in the direction of the exhaust of the rocket motor.

In order to obtain additional operational flexibility, three different eight-hour periods were modeled: one starting at 0800, one starting at 0900, and one starting a 1000. The maximum monthly modeled impacts at each receptor for the three eight-hour periods were combined to create an overall maximum output file. The generated maximum output was processed in EPA's post-processing tool, LEADPOST, to determine the maximum rolling three-month average modeled impact. A summary of the modeled emissions for each scenario as well as modeled parameters are provided in the tables below. A sample calculation demonstrating how the modeled rocket motor emissions were determined is presented following.

$$Source\ Emission\ Rate = \frac{12.72\ lb}{rocket\ motor}\ x\ \frac{6\ rocket\ motors}{day}\ x\ \frac{day}{8\ hours}\ x\ \frac{1}{3\ pads}\ x\ \frac{pad}{3\ sources}$$

$$Source\ Emission\ Rate = 1.06\ lb/hr\ per\ source$$

STATIC FIRING MODELED SOURCE EMISSIONS

Time	NW Pad (lb/hr)	Center Pad (lb/hr)	SE Pad (lb/hr)
08:00-16:00	3.18	3.18	3.18
09:00-17:00	3.18	3.18	3.18
10:00-18:00	3.18	3.18	3.18

[1] – Emissions shown are total emissions modeled for each pad. Modeled emissions for each volume source are one third of the total of each pad.

STATIC FIRING MODELED SOURCE PARAMETERS

Description	X Coord (meters)	Y Coord (meters)	Elevation (meters)	Emission Rate (lb/hr)	Release Height (meters)	Initial Lateral Dimension (meters)	Initial Vertical Dimension (meters)
NW Pad 1	233,757.30	3,856,181.00	241.11	1.06	5.00	2.33	2.33
NW Pad 2	233,757.30	3,856,175.34	241.11	1.06	5.00	2.33	2.33
NW Pad 3	233,757.30	3,856,169.68	241.11	1.06	5.00	2.33	2.33
Center Pad 1	233,806.10	3,856,141.30	242.14	1.06	5.00	2.33	2.33
Center Pad 2	233,802.10	3,856,137.30	242.14	1.06	5.00	2.33	2.33
Center Pad 3	233,798.10	3,856,133.30	242.14	1.06	5.00	2.33	2.33
SE Pad 1	233,829.00	3,856,063.40	243.62	1.06	5.00	2.33	2.33
SE Pad 2	233,823.34	3,856,063.40	243.62	1.06	5.00	2.33	2.33
SE Pad 3	233,817.68	3,856,063.40	243.62	1.06	5.00	2.33	2.33

Inventory source emissions calculations are based on, for open detonation (OD), 2014 and 2015 net explosive weight (NEW) and lead emissions, and, for open burning (OB), 2015 and 2016 NEW and lead emissions. Detailed modeled emissions calculations are provided in the following tables. OB activities are limited in the plant's Resource Conservation and Recovery (RCRA) permit to 20,000 pounds of NEW per burn event and two burn events per day. The calculated pounds of lead per burn event is based on 20,000 pounds of NEW. OD activities are also limited in the plant's RCRA permit and are divided between two areas, the newer area (NEWOD) and the older area (OLDOD). A total of 26,000 pounds of NEW is allowed to be detonated per day. The calculated pounds of lead per detonation is divided evenly between the two open detonation areas. OB and OD source parameters are provided in the following tables.

OB MODELED SOURCE EMISSIONS

Year	lb NEW/yr	lb Lead/yr	Annual Average lb Lead/lb NEW	lb Lead per Burn
2015	2,048,247	1,152.0	0.000562	--
2016	3,734,964	1,852.0	0.000496	--
2-Yr Avg.	--	--	**0.000529**	**10.58**

OD MODELED SOURCE EMISSIONS

Year	lb NEW/yr	lb Lead/yr	Annual Average lb Lead/lb NEW	Total lb Lead per Day	lb Lead per Detonation Pad
2014	2,095,349	320.0	0.000153	--	--
2015	1,731,870	212.0	0.000122	--	--
2-Yr Avg.	--	--	**0.000138**	**3.58**	**1.79**

OB MODELED SOURCE PARAMETERS

Description	X Coord (meters)	Y Coord (meters)	Elevation (meters)	Stack Height (meters)	Stack Temp (K)	Stack Velocity (m/sec)	Stack Diameter (meters)
OB	234,005.00	3,856,293.00	244.49	2.65	0.20	810.93	3.00

OD MODELED SOURCE PARAMETERS

Description	X Coord (meters)	Y Coord (meters)	Elevation (meters)	Emission Rate (lb/hr)	Release Height (meters)	Initial Lateral Dimension (meters)	Initial Vertical Dimension (meters)
OLDOD	235,269.00	3,854,470.00	231.61	0.224	0.00	1.64	5.77
NEWOD	233,718.00	3,855,576.00	246.01	0.224	0.00	1.64	5.77

The results for the static firing modification demonstrate that, when modeled using EPA's and DEQ's preferred methods and in accordance with the most recently published guidance, the facility does not cause or contribute to a violation of lead rolling three-month NAAQS.

NAAQS Analysis

As is shown in the table below, lead emissions from the static firing of the proposed rocket motors as presented in this modeling analysis do not result in a modeled violation of the lead rolling three-month NAAQS. Therefore, this analysis satisfies EPA's and DEQ's requirements for demonstrating compliance with the lead NAAQS.

NAAQS Analysis Results

Time	Maximum Modeled Concentration[1] ($\mu g/m^3$)	Maximum Background (2013-2015) ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	NAAQS[2] ($\mu g/m^3$)	Exceeds NAAQS? (Yes/No)
0800-1600	0.084	0.000	0.084	--	--
0900-1700	0.047	0.000	0.047	--	--
1000-1800	0.041	0.000	0.041	--	--
Generated Maximum	0.084	0.000	0.084	0.15	**No**

[1] Maximum three-month rolling arithmetic mean over 5 years.
[2] 73 FR 66964

Growth Impacts

A growth analysis is intended to quantify the amount of new residential, commercial, or industrial growth that is likely to occur in support of the project and to estimate emissions resulting from that associated growth. Residential growth depends on the number of new employees and the availability of housing in the area, while associated commercial and industrial growth consists of new sources providing services to the new employees and the facility. MCAAP does not anticipate additional personnel will be employed to assist in the static firing of the additional types of rocket motors. Therefore, additional growth from this project is expected to be negligible.

Soils and Vegetation

The effects of gaseous air pollutants on vegetation may be classified into three rather broad categories: acute, chronic, and long-term. Acute effects are those that result from relatively short (less than 1 month) exposures to high concentrations of pollutants. Chronic effects occur when organisms are exposed for months or even years to certain threshold levels of pollutants. Long-term effects include abnormal changes in ecosystems and subtle physiological alterations in organisms. Acute and chronic effects are caused by the gaseous pollutant acting directly on the organism, whereas long-term effects may be indirectly caused by secondary agents such as changes in soil pH.

Since the modeled lead impacts when added to the maximum background concentration are predicted to be below the NAAQS, the project is not expected to cause or contribute to a violation of any primary or secondary NAAQS, which are designed to protect both public health and welfare and the environment from any unknown or adverse effects of air pollution, including damage to vegetation and harmful contamination of soils. Because modeled impacts are below the NAAQS, it is reasonable to assume that secondary and tertiary ingestion of the lead through the consumption of fish (secondary) and deer that eat grass (tertiary) will not cause adverse effects. Therefore, it is expected this project will have no adverse impacts on vegetation or soil.

Visibility Impairment

This project is not expected to produce any perceptible visibility impacts in the immediate vicinity of the plant. Given the limitation of 20% opacity for operations at the plant and the fact that OB/OD/Static Firing operations take less than the six-minute averaging period contained in OAC 252:100-25, no immediate visibility impairment is anticipated.

SECTION VII. PROCESS DESCRIPTION

The facility has the following five main operating functions: load and pack, renovation, demilitarization, disposal, and mobilization. The facility produces various types of ammunition. Although the type of ammunition produced varies, the basic load and pack operations contain similar equipment and operating procedures for each of the different types of munitions. The same is true for the renovation and demilitarization operations. Normal hours of operation at MCAAP are 10 hours per day, 4 days per week, 52 weeks per year, or 2080 hours per year. However, the facility does have the capability of operating continuously; therefore, potential emissions are based on 8760 hr/yr.

The facility contains numerous small emission points and operations are often modified or relocated to meet the operational needs at the facility. For purposes of the Title V permit the facility has been subdivided into several emission unit groups (EUG). These functional groups are based on similar facility operations and associated emission generation.

EUG 1G / 1P / 1N Boilers

The facility boilers produce steam for the production areas throughout the facility. Boilers are located in and furnish production steam to the 40MM, Major Caliber, Medium Caliber, 20MM, Bomb and Mine, and Rocket Plant, production areas. All of the boilers operate on natural gas but have the ability to operate on No. 2 low sulfur diesel fuel.

EUG 2A / 2B / 2G Painting/Surface Coating - Booths

MCAAP performs two types of coating operations, coating within paint booths, and maintenance painting, such as touch-up. Paint booths are primarily utilized to paint and stencil various types of ammunition items, equipment, and containers. The facility operates various types of paint booth operations with varying control technologies; refer to Section IV for a detailed listing of equipment.

Building 190 is utilized for the preparation of bomb bodies prior to load and pack operations in the "A" line. Operations include both internal and external coating of the bomb bodies. Bomb bodies received at Building 190 are removed from the shipping packaging, cleaned, and attached to the building production line.

Once the bomb bodies are attached to the production line, they are given an interior tar (i.e. asphalt) lining. The purpose of the tar lining is to provide a protective barrier between the metal surface of the ammunition item and the explosive placed into the interior cavity of the ammunition. The asphalt is heated and injected into the cavity via a closed loop vacuum system.

After the tar lining operation the bomb bodies receive an exterior surface coating. The bombs enter the paint booth (E-20569, Bomb Paint Booth) where they are coated. The principal coating used in this booth is a thermal resin. This coating is applied to give the bombs a heat resistance during on-board fires; this is why the coating is referred to as thermal. The thermal resin coating contains 10-25% styrene monomers. Before application the styrene monomer is mixed with a catalyst, methyl ethyl ketone peroxide, which initiates a polymerization reaction of styrene monomers to form a cross-linked polystyrene compound. The thermal resin and catalyst are mixed on a 32 to 1 mass basis (i.e., 32 pounds of thermal resin component is mixed with 1 pound of

catalyst). International Paint, thermal resin manufacturer, indicates emissions of un-reacted styrene monomer to be 84 grams per liter. This relates to a VOC weight percentage of 5.81%.

The thermal resin coating is applied to the bomb via a spray system where the bombs are mechanically rotated while the spray system applies the coating. The spray system moves along a vertical axis while applying the coating. The bottom and top ends of the bomb are coated with a hand held spray gun. Since the thermal resin coating has a high viscosity, the booth does not operate with booth filters. However, the paint booth thermal oxidation unit utilizes a mesh filter to protect the unit's catalyst bed.

After the bomb bodies are coated with the thermal resin, they proceed into the striping paint booth (E-20570). The painting in this booth is for bomb identification purposes, where various numbers of stripes are painted on the bomb bodies. These stripes are applied via a hand held spray gun. The paint applied is a lacquer-based paint. The striping paint booth is used to paint bomb shipping covers as well, for which gray enamel paint is typically used. The booth utilizes dry filters to remove overspray paint in the booth exhaust stream.

From the paint booths the bomb bodies are processed through a heat tunnel that cures the thermal paint using infra-red heating elements. After the bomb bodies exit the heat tunnel they leave Building 190 to go to explosive load and pack operations.
Two paint booths added under Permit No. 99-112-TV (M-3) are bottlenecked. A full discussion of both booths is included in the memorandum associated with the M-3 modification. The booth added to Building 101 has potential emissions before the baghouse greater than 5 TPY and is listed in this EUG. The booth added to Building 104 has uncontrolled emissions below 5 TPY, and is listed in EUG 16. Emissions of PM and VOC due to cement mixing and tar lining associated with the activities in Building 101 are very small, and are included in EUG 16.

Three old booths listed in 2G are not permitted, and are treated as grandfathered.

EUG 2F Painting/Surface Coating - Fugitive

The facility conducts miscellaneous painting operations in several different buildings. This painting includes painting of various munitions, associated munitions components, shipping containers, and other miscellaneous items. Typically this painting is performed using aerosol cans or by hand application using paint brushes and/or paint rollers.

Maintenance painting is conducted for building and structure maintenance. Maintenance painting is identified as a Trivial Activity in Appendix J of OAC 252:100.

EUG 3 Solvents

Solvents are utilized at the facility in association with load and pack or renovation operations, as well as with vehicle maintenance or electric and pipe shop operations. The solvents are used to remove grease, adhesives, or old stencil inks from the ammunition. A majority of the solvent usage at the facility qualifies as an insignificant activity for hand wiping and spraying of solvents from containers with less than 1 liter of capacity used for spot cleaning and/or degreasing in ozone attainment areas or qualifies as a trivial activity for covered cold solvent degreasers not subject to federal emission standards. The two solvents MCAAP utilizes the most are non-halogenated and petroleum-based PD-680 and PF-141. Each of these is denser than air and has vapor pressure at or below 1 mm Hg. Due to the low vapor pressure of the solvents, negligible amounts of VOC

will evolve from PD-680 and PF-141. Therefore, solvent operations utilizing PD-680 and PF-141 are considered insignificant activities as defined in OAC 252:100 Appendix I for cold degreasing operations utilizing solvents that are denser than air and for the hand wiping and spraying activities discussed above. The only other solvent used at MCAAP in significant quantities is methyl propyl ketone (MPK). Maximum potential usage of MPK is estimated to be 50,000 lb/yr (25 TPY).

EUG 4 Deactivation Furnace (DF)

The technical name for the deactivation furnace, also known as the Munitions Destruction Furnace, is APE 1236M2 (Ammunition Peculiar Equipment). It is designed to destroy obsolete or unserviceable ammunition. It safely "demilitarizes" munitions by burning so that valuable metals can be recovered, reduces the workload at the Open Burn/Open Detonation (OB/OD) ground, and limits explosive noise and air emissions associated with OB/OD. Items that are disposed of through incineration include primers, detonators, fuses, propellants, and various types and sizes of ammunition. The unit is capable of processing ammunition ranging from small arms through 20-mm rounds. Ammunition larger than 20-mm must be sectioned or disassembled prior to feeding into the unit. MCAAP deactivation facility includes a Munitions Cryofracture Demilitarization Facility (MCDF) that disassembles the larger munitions prior to feeding them to the furnace. The cryofracture process freezes, fractures, punches, and exposes the energetic material prior to delivering it to the incineration system. Munitions can be fed from either an Automatic Waste Feed Conveyor that delivers ammunition smaller than 20-mm or a Positive Feed system (PFS) that delivers cryofractured items from the MCDF. The system is configured so that only one of the delivery systems can operate at any given time.

Major elements of the DF, in order, are a rotary kiln, cyclone scrubber, afterburner, evaporative cooler, conventional baghouse, draft fan, and exhaust stack. The rotary kiln is equipped with a natural gas-fired burner that is used to pre-heat and maintain the combustion chamber temperature for ignition and incineration of the munitions. A combustion air fan provides oxygen for combustion of the fuel and munition streams. Ash and metal components that are not entrained in the flue gases are discharged at the burner end of the kiln onto a discharge conveyor. The discharge conveyor moves the remaining material to an adjacent accumulation area for subsequent removal.

From the kiln, the flue gas is transported to the cyclone to ensure that no sparks are conveyed to downstream equipment. After the cyclone, the flue gas enters an afterburner equipped with another natural gas-fired burner to further heat the combustion gases and destroy any remaining organics. Propane is used during the burner ignition sequence to ignite the afterburner. Following the afterburner, the flue gases pass through stainless steel ductwork to the evaporative cooler where the stream is cooled to a temperature that the baghouse can efficiently handle. An induced draft fan pulls the flue gases through the incineration system before discharge through the exhaust stack.

The DF is equipped with continuous monitoring systems that measure process parameters and emissions. This equipment enables the operators to maintain safe operation in compliance with the operating limits required by the Hazardous Waste Combustion (HWC) NESHAP. In accordance with 40 CFR § 63.1207(b)(1), an initial Comprehensive Performance Test (CPT) performed in November 2004 demonstrated compliance with the emission standards and established limits for the operating parameters provided by 40 CFR §63.1209. Details of the test were presented in the initial TV permit and its modifications, as well as in permit 2005-301-TV, a predecessor permit to the facility-wide Part 70 permit. Several subsequent tests have not achieved desired results. A CPT dated October 28 through November 1, 2013, with a retest June 9 through

12, 2014 demonstrates compliance, and establishes a different set of OPLs from those in the initial CPT.

Operating Parameter Limits (OPL)

In accordance with 40 CFR 63.1209, the following operating parameter limits (OPLs) have been established to demonstrate continuous compliance with the HWC emission standards. Note that several OPLs may be required to demonstrate compliance with a particular standard. All required continuous monitoring systems (CMS), including required continuous emission monitoring systems (CEMS), have been installed, calibrated, and are operated continuously. "Hourly average" means rolling 60-minute average.

OPL parameter	Emission standard[1]
Minimum afterburner temperature, 1,610 °F, hourly average	HC, DRE, D/F
Minimum afterburner temperature, 1,805 °F, hourly average	SVM, LVM
Maximum combustion chamber pressure, 0.0 w.c. [2, 3]	Fugitive emissions
Maximum propellant, explosive, and pyrotechnic (PEP) feed rate, 238 lb/hr [4]	HC, DRE, D/F
Maximum mercury feed rate, 0.00082 lb/hr [4, 5]	Mercury
Maximum semi volatile metals feed rate, 1.2 lb/hr [4]	SVM
Maximum low volatility metals feed rate, 12 lb/hr [4]	LVM
Maximum total chlorine feed rate, 2.4 lb/hr [4]	SVM, LVM, HCl/Cl_2
Maximum particulate matter generation rate, 61 lb/hr [4]	PM
OPL parameter	**Emission standard[1]**
Minimum baghouse inlet temperature, 600 °F, hourly average [2]	D/F
Minimum stack gas velocity, 25 fps, hourly average	Mercury
Maximum stack gas velocity, 65 fps, hourly average	HC, DRE, D/F, SVM, LVM, HCl/Cl_2, PM

1 Where HC means hydrocarbon, DRE means destruction and removal efficiency, D/F means dioxin/furan, SVM means semi-volatile metals (lead & cadmium), LVM means low-volatility metals (arsenic, beryllium and chromium), HCl/Cl_2 means hydrochloric acid/chlorine gas, and PM is particulate matter.

2 Based upon manufacturer's recommendations, upon design specifications, or upon HWC requirements, and not upon CPT demonstrations.

3 There is no averaging period associated with this parameter. Compliance is demonstrated on an instantaneous basis.

4 In lieu of continuously calculating the rolling average feed rate of this parameter, MCAAP determines the total item feed rate that will ensure compliance with the parameter feed rate limit at all times.

5 Maximum allowable mercury feed rate was established by back-calculating from the HWC emission standard using the emission rates and stack gas conditions measured during the CPT.

Automatic Waste Feed Cutoffs

In accordance with 40 CFR § 63.1206(c)(3), the incinerator is operated with a functioning system that immediately and automatically cuts off the hazardous waste feed when OPLs or emission standards are exceeded. An immediate and automatic cutoff is also triggered when the span value of any process monitor is exceeded. Any malfunctions of the CMS or the automatic waste feed cutoff system will also initiate an immediate and automatic cutoff of hazardous waste feed.

Parameter	Trigger	Averaging Period [1]	Reason
Afterburner temperature	< 1,606°F	HRA	operating limit
	> 2,400°F	OMA	span value
Combustion chamber pressure	> -0.10 in. w.c.	Instantaneous	operating limit
	> 2.0 in. w.c.	OMA	span value
Total item feed rate	Variable [2]	- - - [3]	operating limit
	> 50 lb	OMA	span value
Baghouse inlet temperature	> 1,200°F	HRA	operating limit
	> 2,400°F	OMA	span value
Baghouse pressure drop	< 1.0 in. w.c.	HRA	operating limit
	> 30 in. w.c.	OMA	span value
Stack gas velocity	> 62 fps	HRA	operating limit
	> 100 fps	OMA	span value
Stack gas CO concentration	> 100 ppmv	HRA	operating limit

1 HRA refers to hourly rolling average, as in the previous table, and OMA refers to one minute average.
2 In lieu of continuously calculating the rolling average feed rate of each regulated parameter (*e.g.*, LVM and SVM feed rates), MCAAP determines the total item feed rate that will ensure compliance with the parameter feed rate limit at all times. This maximum allowable feed rate to the incinerator will vary with each feed item.
3 There is no averaging period associated with this parameter. At no time will the waste feed monitoring system permit an item to be fed at a rate greater than the calculated maximum allowable feed rate for the item.

Fugitive Emissions
40 CFR 63.1209(p) requires that facilities initiate procedures for controlling combustion system leaks and minimizing fugitive emissions. Combustion system leaks are controlled by maintaining negative pressure in the combustion chamber and enclosing the chamber in a metal shroud to contain any fugitive emissions that may occur. Fugitive emissions captured in the metal shroud are then routed back into the furnace.

Residence Time
40 CFR 63.1206(b)(11) requires that the hazardous waste residence time be calculated and documented in the facility operating record. HWC defines hazardous waste residence time as "the time elapsed from cutoff of the flow of hazardous waste into the combustor (including, for example, the time required for liquids to flow from the cutoff valve into the combustor) until solid, liquid, and gaseous materials from the hazardous waste, excluding residues that may adhere to combustion chamber surfaces, exit the combustion chamber" (40 CFR 63.1201). The hazardous waste residence time must be calculated, and the calculation must be included in the CPT Plan and the operating log.

For the incinerator at MCAAP, the residence time in the combustion chamber is dependent upon the rotational speed, length, and flight spacing in the furnace. At a rotational speed of one revolution per minute (rpm), it takes a feed item approximately 8 minutes to process through the kiln. Because the distance between the flights and the length of the furnace do not vary, the residence time will vary inversely with rpm. Rotational speeds during normal operation vary between 1 and 3 rpm, which implies residence times vary between 8 and 2.7 minutes.

Operating Requirements
In accordance with 40 CFR 63.8(d)(2), MCAAP has prepared a CMS Performance Evaluation (PE) Plan to implement the CMS quality control program and specify how the source will maintain

calibration of the CMS and minimize malfunctions. The CEMS Quality Assurance/Quality Control (QA/QC) Program required by the Appendix to 40 CFR Part 63 Subpart EEE is included in the CMS PE Plan.

In accordance with 40 CFR 63.1206(c)(2), the U.S. Army has prepared and at all times operates according to a Startup, Shutdown, and Malfunction (SSM) Plan as specified in 40 CFR 63.6(e)(3). The SSM Plan includes a description of potential causes of malfunctions that may result in significant releases of HAPs. The purpose of the SSM Plan is to:

- ensure that, at all times, the incinerator, including the air pollution control equipment, is maintained in a manner consistent with safety and good air pollution control practices for minimizing emissions to the levels required by the standards;
- ensure that MCAAP is prepared to correct malfunctions as soon as practicable after their occurrence in order to minimize excess emissions of HAPs; and
- reduce the reporting burden associated with periods of SSM by minimizing the number of occurrences of excess emissions of HAPs, including corrective action taken to restore malfunctioning process and air pollution control equipment to its normal or usual manner of operation.

In accordance with 40 CFR 63.1206(c)(7), MCAAP has prepared and at all times operates according to an Operation and Maintenance (O&M) Plan. The plan includes detailed procedures for operation, maintenance, and corrective measures for all components of the combustor, including associated air pollution control equipment, that could affect emissions of regulated HAPs.

Feedstream Analysis Plan and Feed Rate Control Program
In accordance with 40 CFR 63.1209(c)(2), the U.S. Army has developed and implemented a Feedstream Analysis Plan (FAP). The FAP is used to determine the maximum allowable feed rate for each specific munition item to ensure compliance with the OPLs. The FAP relies on information from the Munitions Item Disposition Action System (MIDAS), which is a database containing chemical constituent information for all ammunition, components, and parts. Information in the database is based on military specifications and specific production records.

Using information from the FAP and MIDAS, the Feed Rate Control (FRC) Program calculates the allowable feed rate of ammunition items to the furnace. Each feed item is analyzed and entered into the FRC Program before it is burned in the incinerator. The allowable feed rate for each item is determined and the lowest calculated rate is the limiting rate for that item based on the following criteria.

- PEP content
- Potential PM generation
- Total chlorine content
- Cadmium and lead content (SVM limit)
- Arsenic, beryllium, and chromium contents (LVM limit)

Operator Training and Certification
In accordance with 40 CFR 63.1206(c)(6), MCAAP has developed and implemented an Operator Training and Certification (OTC) Program. The OTC Program is designed to provide training to

all personnel whose activities may reasonably be expected to directly affect the emission of HAPs from the incinerator. Control room operators are trained and certified in accordance with the requirements of 40 CFR 63.1206(c)(6)(iii). One certified control room operator is on duty at the site at all times while the incinerator is in operation.

EUG 5 Open Burning/Open Detonation (OB/OD)

The OB/OD grounds have been used since the start of operations for disposal of ammunition items and explosives that are deemed in excess, outdated, or unserviceable. MCAAP maintains and operates OB/OD areas under a 2013 Resource Conservation and Recovery Act (RCRA) permit for burning and detonation activities at the ranges. The RCRA permit sets net explosive weight (NEW) limitations on the Open Burning, Open Detonation, and Static Firing activities at MCAAP as follow.

Open Burning	6,400,000 lb/yr
Static Firing	1,280,000 lb/yr
Open Detonation	2,280,000 lb/yr

None of the operations on the OB/OD grounds has control devices installed. There are three main types of operations that occur on the OB/OD grounds.

- Open Burning (OB) operations involve disposal of propellants, explosives, and pyrotechnics (PEP) items. The operations at the OB grounds include two flash burning trenches, three earth bermed static fire pads, and an open burning range, which consists of five burning pads with associated steel burning pans. The burning pans have a capacity of 4,000 lbs NEW per pad per burn. Flash burning involves placing the items into an open trench (150′×12′× 8′) on top of untreated excess wood and igniting the wood using No. 2 low sulfur (0.05%) diesel fuel as an accelerant.
- Outdated missile propellant is disposed of through static firing, which involves securing a missile to a stationary concrete pad and igniting the propellant. Static firing is performed on SRAMs, Hawks, MK56 and MK58 Missile Motors, and Mavericks. The purpose of this permit is to obtain approval to fire an additional type of rocket motors, the MK 12.
- Open Detonation (OD) is a sister operation to OB. OD is performed by placing the ammunition in a bermed pit, covering it with soil, and igniting it using a donor charge of explosive. The OD grounds consist of two detonation areas, Area 1 and Area 2 (formerly referred to as Range 1 and Range 2). Both detonation areas contain 26 earth bermed explosive pits.

EUG 6 Explosive Mixing

Explosive mixing is conducted at several locations at MCAAP. There are different types of explosive mixing conducted at the plant. Examples include conventional explosives such as Tritonol and the newer Plastic Bonded Explosives (PBX). Both explosive mixtures, solid and liquid, are placed in steam jacketed kettles to melt the explosive materials into a homogeneous mixture. Wet and venturi scrubbers control explosive mixing emissions.

EUG 7 Grit Blasting

Grit blasting is performed either to prepare the surfaces of metal items for new ablative coatings or for the removal of old paint and stenciling. Grit blasting is performed on bomb bodies, ammunition cans, and containers. Grit blasting emissions are controlled by baghouses or cartridge filters. The grandfathered grit blaster, E-12885 in EUG 7G, has been removed and was replaced with a pneumatic blast room designed for the blasting of large work pieces.

EUG 8 Thermal Arc Spraying

Thermal arc spray continually feeds metal wires through an electric arc. Compressed air is blown through the atomized metal to deposit metal droplets onto the bomb body. The wire is either a blend of 85 percent zinc and 15 percent aluminum or is pure aluminum. Thermal arc spray operations were begun to minimize the amounts of metal primers in the painting operations at MCAAP and to reduce VOC emissions. During thermal arc spray operations, atomized sprays of aluminum/zinc wire particles adhere to the bare metal surfaces of bomb bodies to form substrates to which paints and ablative coatings can adhere. Each thermal arc spray unit has a baghouse or cartridge filter to collect particulate matter.

EUG 9 Explosive Sifting

Explosives are sifted to remove impurities and large particulates from the explosive prior to palletizing or loading into the various ammunition types which MCAAP loads and packs. Some of the explosives are treated with an additive to reduce PM emissions. PM emissions are controlled by baghouses and wet scrubbers.

EUG 10 Explosive Dust Collection

Explosive load and pack operations entail propellant loading, dumping, and weighing operations, which generate explosive dust and particulates. These emissions are collected in dust systems located in or near the production buildings. The dust systems, which may be stationary or portable, utilize various types of control equipment including wet scrubbers and baghouses.

EUG 11 Miscellaneous Particulate Collection

MCAAP conducts the following operations that produce particulate emissions.

- Wood processing is performed to cut, mill, assemble, and process wooden parts used to fabricate wood pallets, blocking and bracing, and miscellaneous crates and boxes for ammunition items. This is done to meet the Explosive Safety Regulations required for shipping and transporting explosive items. The wood processing equipment is controlled by cyclones or dust collectors.
- Inert bombs are display weapons that are purposely rendered incapable of explosion by having been loaded with cement. Training projectiles have limited explosive load, with most of the load being cement. Cement mixing is used to prepare the cement mixtures loaded into each of these devices.

EUG 12 Explosive Meltout

MCAAP conducts Ammunition Breakdown and Explosive Melt-out operations in Buildings 171 and 186. These operations demilitarize ammunition projectiles and conventional bombs. Projectiles are subject to a multi-step breakdown and melt-out process. Ammunition consists of a projectile and a cartridge case. Typical physical breakdown operations include the following steps.

A. Propellant Dumping- Ammunition is received by boxcar in wooden boxes. Each box has two cardboard tubes containing one round, a projectile and cartridge, per tube. Each round is removed from the tube and the propellant is poured from the cartridge case. The propelling charge is emptied into a collection chamber. The charge is M67 smokeless propellant contained within 7 bags, or stages.
B. Depriming Operation- An operator manually places a cartridge case into a primer removal machine. Primers are not fired during this process.

C. Supplemental Charge/Fuse Removal Operation- Supplemental charges/fuses are removed from the projectile and packaged for renovation for military reuse or disposed at OB/OD grounds.
D. Debanding Operation- involves removing the copper rotating bands from the projectile. The bands are disposed of as scrap metal. The debanded, defused projectile bodies are then ready for melt-out of explosives.

Explosive melt-out process is performed by utilizing steam jacketed autoclaves that melt the explosives. Buildings 171 and 186 operate 20 and 24 autoclaves respectively. Projectiles/bombs contain various amounts of explosives and chemical compounds, with trinitrotoluene (TNT), powdered aluminum, and cyclonite (RDX) the most common. Asphalt and wax may also be present.

As the explosive or other components are melted from the projectile or bomb, they collect in a common manifold system and are deposited into a vat separator, from which each material is decanted to its collection site. The explosive mixture drains from the vat onto a cooled metal flaker belt that solidifies the explosive. The flaker is cooled by chilled water sprayed onto the underside of the metal flaker belt. The water is recaptured and re-circulated through an ethylene glycol chiller for reuse. The solid explosive then falls into boxes located at the end of the flaker system. Wet scrubbers control particulate matter emissions from the melt-out process.

All empty projectiles, casings, and bomb bodies, are disposed of as scrap metal. All asphalt must be disposed of at the Open Burning Ground, because it is contaminated with explosive.

EUG 13 Storage Tanks
MCAAP operates 24 gasoline and diesel fuel storage tanks and fuel dispensing operations. In addition to the motor vehicle fueling areas, fuel storage tanks are placed at strategic locations for emergency purposes.

EUG 14 Engines Subject to NESHAP Subpart ZZZZ

14A Subject to NSPS Subpart IIII
These engines are affected sources under NSPS, are considered new under ZZZZ, and satisfy the requirements of ZZZZ through compliance with IIII.

14B Not Subject to NSPS Subpart IIII
These engines are not affected sources under NSPS, are considered new under ZZZZ, and satisfy the requirements of ZZZZ through compliance with IIII, which means that they have no compliance requirements (gap engines).

14C Not 14A or 14B, HP > 500
This engine is not an affected source under NSPS, is an existing source under NESHAP, and is rated in excess of 500 BHP.

14D Not 14A or 14B, HP ≤ 500
These engines are not affected sources under NSPS, are existing sources under NESHAP, and are rated at less than 500 BHP.

EUG 15 Empty
Equipment under this EUG has been transferred to EUG 14A.

EUG 16 Insignificant Activities

- MCAAP generates classified documents that must be disposed of without jeopardizing the security of the material. Classified materials are destroyed by shredding, with no emissions.
- Chemical laboratory tests are performed on explosive mixtures to check for compliance with specifications, to conduct curing validations of the explosive mixtures, and to check the quality of the materials used in explosives production. The chemicals, solvents, and gases used to conduct the analyses are vented to the atmosphere.
- Defense Ammunition Center (DAC) Training Range operations involve training ammunition destroyers and technical personnel in the proper disposal techniques used in the OB/OD of outdated ammunition. The DAC Range has five bermed OD pits and one OB pan.
- Tar coating provides a tar lining of bomb bodies and 155 mm training projectiles.
- Wastewater flare at the sewage plant.
- Hoffman Vacuum Cleaning Systems.
- Three small paint booths.

EUG 17 Plasma Arc Cutters

This EUG contains plasma arc cutters used to cut steel plate into needed sizes and shapes. Six units were installed under Permit No. 99-112-TV (M-5) and four more under Permit No. 99-112-C (M-9).

SECTION VIII. EQUIPMENT

EUG 1G Grandfathered Boilers

Equip. ID	Point ID	Building	Manufacturer	Heat Input MMBTUH	National Board #	Model No.	Serial No.	Construction/ Mod. Date
E-025	P-019A	165B	Cleaver Brooks	10.461	27441	CB 200-250	L-54363	1972
E-026	P-019B	165B	Cleaver Brooks	10.461	27352	CB 200-250	L-54362	1972
E-001	P-001	1	FIA*	2.24	N/A	N/A	N/A	1971**
E-002	P-002	2	FIA*	0.5	N/A	N/A	N/A	1998
E-003	P-003	4&405	FIA*	0.99	N/A	N/A	N/A	1998
E-004	P-004	5	FIA*	0.54	N/A	N/A	N/A	1971**
E-005	P-005	7	FIA*	0.5	N/A	N/A	N/A	1998
E-006	P-006	11	FIA*	1.44	N/A	N/A	N/A	1943
E-007	P-007	29	FIA*	0.264	N/A	N/A	N/A	1953**
E-008	P-008	30	FIA*	0.216	N/A	N/A	N/A	1942**
E-010	P-010	83	FIA*	0.549	N/A	N/A	N/A	1974
E-014	P-013	105C	FIA*	3.348	N/A	N/A	N/A	1942**
E-015	P-014	108B	FIA*	3.348	N/A	N/A	N/A	1976**
E-016	P-014	108B	FIA*	4.19	N/A	N/A	N/A	1976**
E-036	P-023	569	FIA*	1.883	N/A	N/A	N/A	1942
E-037	P-024	759	FIA*	1.26	N/A	N/A	N/A	1994
E-038	P-025	759	FIA*	1.26	N/A	N/A	N/A	1994
E-039	P-039	35	FIA*	0.76	N/A	N/A	N/A	1998

*FIA = Formerly Insignificant Activities; **Currently out of service or non-operational.

EUG 1P Permitted Boilers

Equip. ID	Point ID	Bldg	Manufacturer	Heat Input MMBTUH	National Board #	Model No.	Serial No.	Const./ Mod. Date
E-017	P-015A	110B	York-Shipley	6.1	14458	SPHC-150-N2 95872	74-8455H-60612	1974
E-018	P-015B	110B	York-Shipley	6.1	14459	SPHC-150-N2 95872	74-8455H-60612	1974
E-021	P-017A	136B	Kewanee Boiler	10.463	26629	H2S-250-GO	P-3430	1975
E-022	P-017B	136B	Kewanee Boiler	10.463	26628	H2S-250-GO	P-3429	1975
E-040	P-040	141B	Cleaver Brooks	8.165	A59576645	CBEX Elite-200-200-150ST	T5334-1-2	2016
E-041	P-041	141B	Cleaver Brooks	8.165	A59576641	CBEX Elite-200-200-150ST	T5334-1-1	2016
TEMP	TEMP	141B	Abco	10.04	2425	NA	8651	1987

EUG 1N NSPS Boilers

Equip. ID	Point ID	Building	Manufacturer	Heat Input MMBTUH	National Board #	Model No.	Serial No.	Construction/ Mod. Date
E-042	P-042	185B	Cleaver Brooks	14.287	19416	CBEX200-350-150ST	T5096-1-1	2015
E-043	P-043	185B	Cleaver Brooks	14.287	19429	CBEX200-350-150ST	T5096-1-4	2015
E-044	P-044	185B	Cleaver Brooks	14.287	19419	CBEX200-350-150ST	T5096-1-3	2015
E-045	P-045	185B	Cleaver Brooks	14.287	19426	CBEX200-350-150ST	T5096-1-2	2015
E-046	P-046	185B	Cleaver Brooks	20.410	19439	CBEX200-500-150ST	T5096-2-1	2015
E-047	P-047	185B	Cleaver Brooks	20.410	19445	CBEX200-500-150ST	T5096-2-2	2015
E-048	P-048	105B	Cleaver Brooks	12.247	20128	CBEX200-500-150ST	T5902-1-1	2017
E-049	P-049	105B	Cleaver Brooks	12.247	20129	CBEX200-500-150ST	T5902-1-2	2017
E-050	P-050	129B	Cleaver Brooks	14.287	TBD	TBD	TBD	2017
E-051	P-051	129B	Cleaver Brooks	14.287	TBD	TBD	TBD	2017
E-052	P-052	229B	Cleaver Brooks	14.287	20254	TBD	T6076-1-1	2017
E-053	P-053	229B	Cleaver Brooks	14.287	20256	TBD	T6076-1-2	2107

EUG 2B Permitted Coating Booths

Equipment ID	Emission Point ID	Bldg.	Description	Function	Const/ Mod Date
E-20569	P-190PB	190	Paint Booth	A Line Bomb Production	1978/1990
E-20570	P-190PB	190	Stenciling Paint Booth	A Line Bomb Production	1978/1990
E-01101	P-01101	11/399	Paint Booth	Miscellaneous Painting	1943/1992/2007
E-47757	P-47757	48	Paint Booth	Bomb renovation painting	2003
E-49224	P-49224	101	Paint Booth	155 mm Projectile painting	2011
E-40093	P-40093	111	Paint Booth	Paint & Stencil Harpoon Missile	1993
E-31679	P-31679	134	Paint Booth Heat Tunnel	Metal Ammo Boxes and Containers	1943/1989
E-14201	P-14201	142	Paint Booth	Special Bombs	2006
E-45619	P-45619	175	Paint Booth	B Line Bomb Production	1988
E-45619	P-45619	175	Paint Booth	B Line Bomb Production	1984
E-19801	P-19801	198	Paint Booth	Integrated Ammunition Maintenance	1998
E-19802	P-19802	198	Paint Booth	Integrated Ammunition Maintenance	1943/1998
E-19803	P-19803	198	Paint Booth	Integrated Ammunition Maintenance	1943/1998
E-08128	P-08128	454	Paint Booth	Inert Bomb Production	1983
E-44482	P-44482	455	Paint Booth	Inert Bomb Production	1999
E-419F	P-419F	419	Paint Booth	DAC Paint Booth	1999
E-11399	P-11399	567	Paint Booth	Special Weapons Paint Booth	1991

EUG 2F Coating Fugitives

Equipment ID	Emission Point ID	Building	Description	Function	Const/ Mod Date
E-FUG1	P-FUG1	Various	Various paint and thinner usage	Aerosol, Brush, Roller, etc. Painting Operations	1943

EUG 2G Grandfathered Coating Booths

Equipment ID	Emission Point ID	Building	Description	Function	Const/ Mod Date
E-07761	P-07761	126	Paint Booth	Medium Caliber Production	1964
E-05149	P-05149	130	Paint Booth	Medium Caliber Production	1960
E-32484	P-32484	453	Paint Booth	In Storage	1990

EUG 3 Solvent

Equipment ID	Emission Point ID	Building	Description	Process Rate	Const/ Mod Date
E-SOL	P-SOL	Various	Solvent Usage	Various	1943

EUG 4 Munitions Deactivation Furnace

Equipment ID	Emission Point ID	Building	Description	Process Rate	Const/ Mod Date
E-0452	P-0452	452	Deactivation Furnace	Various	1943 / 1997

EUG 5G Grandfathered OB/OD/Static Firing

Equipment ID	Emission Point ID	Description	Process Rate	Const/ Mod Date
E-990	P-990	Flash Burning Trench	520 TPY wood, 1300 GPY diesel	1942
E-991	P-991	Flash Burning Trench	520 TPY wood, 1300 GPY diesel	1942
E-997	P-997	Open Burning Range	OB Total = 6,400,000 lb/yr of NEW	1942
E-998	P-998	Open Detonation Area 1	OD Total = 2,280,000 lb/yr of NEW	1942
E-999	P-999	Open Detonation Area 2		1942

EUG 5P Permitted OB/OD/Static Firing

Equipment ID	Emission Point ID	Description	Process Rate	Const/ Mod Date
E-994	P-994	Static Firing Pad #1	Total SF = 147 MK 56 missiles, 100 SRAM rockets, 300 MK 58 missiles, 509 Hawk missiles per year, 699 MK 12 missiles per year and/or 96 Mavericks per day or 4,250 per year.	1996/2014/ 2017/2018
E-995	P-995	Static Firing Pad #2		
E-996	P-996	Static Firing Pad #3		

EUG 6G Grandfathered Explosive Mixing

Equipment ID	Emission Point ID	Building	Description	Function	Const/ Mod Date
E-34252	P-33205	172	B-Line Exp Mix	TNT mixing (inactive)	1966
E-34253					
E-34254					
E-34255					
E-34256					
E-34257					
E-34332	P-32650	177	B-Line Exp Mix	TNT mixing	1966
E-34333					1943
E-57692					1971
E-57693					1971
E-34336					1966
E-57691					1971

EUG 6G Grandfathered Explosive Mixing

Equipment ID	Emission Point ID	Building	Description	Function	Const/ Mod Date
E-34252	P-33205	172	B-Line Exp Mix	TNT mixing (inactive)	1966
E-34253					
E-34254					
E-34255					
E-34256					
E-34257					
E-34332	P-32650	177	B-Line Exp Mix	TNT mixing	1966
E-34333					1943
E-57692					1971
E-57693					1971
E-34336					1966
E-57691					1971

EUG 6P Permitted Explosive Mixing

Equipment ID	Emission Point ID	Building	Description	Function	Const/ Mod Date
E-34200	P-39786	104	40 MM Production Area Exp. Mix	TNT mixing	1978
E-34300	P-19584	194B	A-Line Exp Mix	PBX mixing	1989
E-34298					
E-34299	P-19563				
E-34297					
E-41994	P-14202	142	Medium Caliber Production Exp Mix	PBX mixing	2000
E-41995					
E-41997					
E-34197	P-19200	192	A-Line Exp Mix	TNT mixing	1999
E-49114	P-49497	177B	Exp Mix	PBX mixing	2013
E-49116	P-49497	177B	Exp Mix	PBX mixing	2013
E-49492	P-49485	114C	Wet Scrubber	PBX mixing	2012
TBD	TBD	187	Wet Scrubber	AFX mixing	2017

EUG 7G Grandfathered Grit Blasting

Equipment ID	Emission Point ID	Bldg	Description	Function	Const/ Mod Date
E-39451	P-48509	134	Grit Blasting	Renovate ammo containers	1947
E-39452	P-48509	134	Grit Blasting	Renovate ammo containers	1943
E-34302	P-34302	423	Weld Shop Grit	Grit blast various metal parts prior to weld	1944
E-33494	P-A95024	126	Medium Caliber Production Grit	Grit blast ammo for renovation	1943
E-03550	P-03550	429	Old Weld Shop Grit	Grit blast various metal parts prior to weld	1948

EUG 7P Permitted Grit Blasting

Equipment ID	Emission Point ID	Bldg	Description	Function	Const/ Mod Date
E-48660	P-48509	134	Grit Blasting	Renovate ammo containers	2005
E-52448	P-48509	134	Grit Blasting	Renovate ammo containers	2017
E-455GB	P-455GB	455	Inert Bomb Grit	Grit blasting bomb bodies prior to TAS	1999
E-17501	P-17501	175	Grit Blasting	Grit blasting bomb bodies prior to TAS	2000
E-19001	P-19001	190	Grit Blasting	Grit blasting bomb bodies prior to TAS	2000

Equipment ID	Emission Point ID	Bldg	Description	Function	Const/ Mod Date
E-198GB	P-198GB	198	Bomb & Mine Production Grit	Grit blasting ammo for renovation	1944/1998
E-0419GB	P-0419GB	419	DAC TTF Grit	Various grit blasting activities	1999
E-44730	P-44730	48	Bomb Grit Blasting	Grit blast of bomb bodies	2004
E-4T0901	P-4T0901	567	Pneumatic Blast Room	Various grit blasting activities	2015

EUG 8 Thermal Arc Spraying (TAS)

Equipment ID	Emission Point ID	Bldg.	Description	Function	Const/ Mod Date
E-455TAS	P-455TAS	455	Inert Bomb TAS	Spraying of Al/Zn wire on bomb bodies	1943/1988
E-175TAS	P-175TAS	175	B-Line TAS		2000
E-190TAS	P-190TAS	190	Thermal Arc Spraying		2004
E-48TAS	P-48TAS	48			

EUG 9G Grandfathered Explosive Sifting

Equipment ID	Emission Point ID	Bldg.	Description	Function	Const/ Mod Date
E-31237	P-31888	110	Major Caliber Production Exp Sift	Exp sifting to remove impurities	1942
E-31238	P-31889	110			1942
E-01060	P-01060	174	B-Line Exp Sift	Exp sifting to remove impurities	1942
E-179SIF	P-179SIF	179			1942
E-01055	P-01055	181	B-Line Exp Sift	Aluminum powder sifting	1944
E-09484	P-09484	182			1944

EUG 9P Permitted Explosive Sifting

Equipment ID	Emission Point ID	Bldg.	Description	Function	Const/ Mod Date
E-194AS	P-194AS	194A	A-Line Exp Sift	Exp sifting to remove impurities	1989
177B baghouse	P-49455	177B	PBX sifting	Exp sifting to remove impurities	2013
TBD	TBD	189	Venturi Scrubber	Exp sifting to remove impurities	2017
TBD	TBD	183	Baghouse	Aluminum powder sifting	2017

EUG 10G Grandfathered Explosive Dust Collection

Equipment ID	Emission Point ID	Bldg.	Description	Function	Const/ Mod Date
E-0140B	P-0140B	140	40 MM Production	Explosive dust collection from load & pack operations	1943
E-05172	P-05172	104	Explosive Dust Collection		
E-31652	P-31652	126		(Not Operational)	
E-08915	P-31650	109			

EUG 10P Permitted Explosive Dust Collection

Equipment ID	Emission Point ID	Bldg.	Description	Function	Const/ Mod Date
E-AL01	P-AL01	194B	A-Line Exp Mix	Aluminum Powder Mixing	1989

EUG 11G Grandfathered Miscellaneous Particulate Collection

Equipment ID	Emission Point ID	Building	Description	Function	Const/ Mod Date
E-0009C	P-0009C	9	Wood Processing	Munitions container preparations	1943

EUG 11P Permitted Miscellaneous Particulate Collection

Equipment ID	Emission Point ID	Building	Description	Function	Const/ Mod Date
E-31973	P-31973	710	Wood Processing	Munitions container preparations	1993
E-40824	P-40824	388			
E-49233	P-49233	101	155 mm Projectile	Cement Mixing	2011
E-43744	P-43744	454	Inert Bomb	Cement Mixing	1943/1998
E-43745	P-43745	455			
E-637/760L	P-637/760L	637/760	Wood Processing	Munitions container preparation	2001
E-637/760S	P-637/760S				

EUG 12 Explosive Meltout

Equipment ID	Emission Point ID	Building	Description	Process Rate	Const/ Mod Date
E-17101 thru 17123	P-44217	171	Explosive Meltout	Various	1943/1996
E-18601 thru 18623	P-44216	186	Explosive Meltout	Various	1943/1996
E-18624 thru 18629	P-44239	186	Explosive Meltout	Various	2007

EUG 13G Grandfathered Fuel Storage and Dispensing

Equipment ID	Emission Point ID	Location	Description	Capacity (gallons)	Construction Date
E-733F	P-733F	48	Diesel	5,000	1943
E-732	P-732	78	Diesel	1,100	1943
E-735	P-735	78	Heavy Oil	8,000	1943

EUG 13P Permitted Fuel Storage and Dispensing

Equipment ID	Emission Point ID	Location	Description	Capacity (gallons)	Construction Date
E-0476P	P-0476P	476	Diesel	12,000	1999
E-630F	P-630F	Fuel Farm	Gasoline	10,000	1971
E-631F	P-631F	Fuel Farm	Gasoline	10,000	1971
E-632F	P-632F	Fuel Farm	Gasoline	10,000	1971
E-633F	P-633F	Fuel Farm	Diesel	10,000	1971
E-672F	P-672F	Fuel Farm	Diesel	508,000	1971
E-746F	P-746F	452	Diesel	850	1979
E-790P	P-790P	452	Diesel	4,000	1979
E-756F	P-756F	569	Diesel	6,000	1992
E-742F	P-742F	105B	Diesel	5,200	1979
E-741F	P-741F	110B	Diesel	7,900	1979
E-738P	P-738P	129B	Diesel	10,000	1979
E-744F	P-744F	136B	Diesel	5,200	1979
E-737F	P-737F	165B	Diesel	10,000	1979
E-739F	P-739F	185B	Diesel	20,000	1979
E-755F	P-755F	1AT	Diesel	2,100	1979
E-736F	P-736F	229B	Diesel	10,000	1979
E-743F	P-743F	141B	Diesel	3,800	1979
E-775	P-775	185B	Diesel	200	1979
E-800	P-800	165B	Diesel	575	1990
E-801F	P-801F	Fuel Farm	Gasoline	12,000	2009

EUG 14A Engines Subject to NSPS Subpart IIII

Equipment ID	Emission Point ID	Building	Description	Serial Number	Const/ Mod Date
E-0105G	P-0105G	105-B	Cummins 80.5 hp	D080169373	2008
E-0110G	P-0110G	110-B	Cummins 201.2 hp	D080169379	2008
E-0136G	P-0136G	136-B	Cummins 80.5 hp	D080169374	2008
E-036G	P-036G	36	Cummins 335 hp	73067723	2009
E-390G	P-0390G	390	John Deere 96 hp	PE5030L103204	8/2012
E-036F	P-036F	Guard	John Deere 4045HFC 104 kW	N/A	2/2010
E-RTG	E-RTG	Radio Tower	John Deere 54 hp	SGM32DCMT	10/2013

EUG 14B Engines Not Subject to NSPS Subpart IIII

Equipment ID	Emission Point ID	Building / Location	Description	Serial Number	Const/ Mod Date
E-01GEN	P-01GEN	777-A N	Cummins QSK60-G6 2,922 hp	K050851178	2006*
E-02GEN	P-02GEN	777-A S	Cummins QSK60-G6 2,922 hp	K050851179	2006**
E-03GEN	P-03GEN	452	Generac 972 hp	2069093	2002

*Manufactured 10/26/05, **10/20/05.

14C Engines Not 14A or 14B, with HP > 500

The only engine in this EUG is a 1,039-hp Magnaone constructed in 1995. It serves a 775-kW generator at Building 194-B.

14D Engines Not 14A or 14B, with HP ≤ 500

Bldg.	Description	HP	Date
1	Generac	235	1993
2	Generac	268	1993
3	Cummins	134	2004
5	Generac	201	1995
16	Generac	268	2000
31	Onan	35	1998
35	Onan	35	1998
40/41	Generac	268	1989
42	Onan	15	1999
104	Magnaone	489	1981
129-B	Armstrong	148	2003
141-B	Cummins	80	2004
165-B	Cummins	80	2004

Bldg.	Description	HP	Date
185-B	Cummins	268	2004
190	Kohler	107	N/A
210	Cummins	80	2004
229-B	Cummins	134	2004
231	Cummins	47	2004
234	Cummins	80	2004
402	Generac	235	1993
408	Kohler	349	N/A
424	Onan	60	1974
481	Onan	34	1998
567	Marathon	67	1991
725/628	Cummins	47	2004
Post 14	Generac	402	2000

EUG 16 Insignificant Activities

See list of "Insignificant Activities" in Section VII.

EUG 17 Plasma Arc Cutters

EU ID	Building	Booth Description	Cutting Operation
Booth 1	1042	Low Amp Plasma Arc Cutting	Power Max 1650 (90 Amp)
Booth 2	1042	Oxy-Acetylene Cutting	Oxy-Acetylene Torch
Booth 3	1042	High Amp Plasma Arc Cutting	Black Max 200 (200 Amp)
Booth 4	1042	High Amp Plasma Arc Cutting	Black Max 200 (200 Amp)
Booth 5	1042	Low Amp Plasma Arc Cutting & Oxy-Acetylene Cutting	Power Max 1650 (90 Amp) & Oxy-Acetylene Torch
Booth 6	1042	High Amp Plasma Arc Cutting	Black Max 200 (200 Amp)
Booth 7	1042	High Amp Plasma Arc Cutting	Black Max 200 (200 Amp)
Booth 8	1042	High Amp Plasma Arc Cutting	Black Max 200 (200 Amp)
Booth 9	1042	High Amp Plasma Arc Cutting	Black Max 200 (200 Amp)
Booth 10	1042	High Amp Plasma Arc Cutting	Black Max 200 (200 Amp)

SECTION IX. EMISSIONS

The emission estimates presented in this section serve only quantitative purposes and do not represent emission limitations. For emission limitations, refer to the Specific Conditions of this permit. The following emission factors were used to determine potential emissions from the facility. EUG-5A emission factors for open detonation of munitions (lb/lb Net Explosive Weight) and EUG-5B emission factors for open burning (lb/lb) are listed in extensive detail in the original TV permit and in the documents available for inspection at the facility. These factors were generated in 2005 by Bill Mitchell & Associates, but add little to the discussion and are not repeated here.

Emission Factors and References

ID	Emission Unit	Pollutant	Emission Factor	Units	Factor Reference
EUG 1 – Scenario I Gas fired	Boilers	NO_x	100	Lb/MMscf	U.S. EPA AP-42 (7/98) Fifth Edition Chapter 1.4
		CO	84		
		SO_2	0.6		
		PM/PM_{10}	7.6		
		VOC	5.5		
EUG 1 – Scenario II Oil fired	Boilers	NO_x	20	lb/10^3 gal, with 0.140 MMBTU per gallon	U.S. EPA AP-42 (7/98) Fifth Edition Chapter 1.3
		CO	5		
		SO_2	7.1		
		PM/PM_{10}	3.3		
		VOC	0.2		
EUG 1 – Scenario I Gas fired	E-040, E-041, E-042, E-043, E-044, E-045, E-046 & E-047	NO_x	0.01	lb/MMBtu	Manufacturer's Data
		CO	0.035		
		SO_2	0.0075		
		PM/PM_{10}	0.001		
		VOC	0.0032		
EUG 1 – Scenario II Oil fired	E-040, E-041, E-042, E-043, E-044, E-045, E-046 & E-047	NO_x	0.025	lb/MMBtu	Manufacturer's Data
		CO	0.12		
		SO_2	0.008		
		PM/PM_{10}	0.10		
		VOC	0.002		
EUG 1 – Scenario I Gas fired	E-048 & E-049	NO_x	0.035	lb/MMBtu	Manufacturer's Data
		CO	0.018		
		SO_2	0.001		
		PM/PM_{10}	0.002		
		VOC	0.0036		
EUG 1 – Scenario II Oil fired	E-048 & E-049	NO_x	0.115	lb/MMBtu	Manufacturer's Data
		CO	0.008		
		SO_2	0.100		
		PM/PM_{10}	0.014		
		VOC	0.002		
EUG 1 – Scenario I Gas fired	E-050, E-051, E-052 & E-053	NO_x	0.035	lb/MMBtu	Manufacturer's Data
		CO	0.0075		
		SO_2	0.001		
		PM/PM_{10}	0.01		
		VOC	0.0032		
EUG 1 – Scenario II Oil fired	E-050, E-051, E-052 & E-053	NO_x	0.12	lb/MMBtu	Manufacturer's Data
		CO	0.008		
		SO_2	0.1		
		PM/PM_{10}	0.025		
		VOC	0.002		
EUG 2B, G, & F	Building 190 booths only	PM/PM_{10}	2004 mass balance, with filter efficiency of 92% and transfer efficiency of 50%.	%	Manufacturer's Data
EUG 2B, G, & F	Uncontrolled Paint Booths Base-wide	VOC	Mass balance of materials used in 2004	%	Safety factor of 30% authorized by Consent Order 05-371 for Building 190 booths.
EUG 2C	Base-wide Fugitive Emissions from Painting /Surface Coating	VOC	Various	%	Material usage and VOC content scaled up from CY 2004 data.
EUG 3	Base-wide Solvent Emissions	VOC	Various	%	Material usage and VOC content scaled up from CY 2004 data.
EUG 4	Munitions Deactivation Furnace	Various	Various	Various	Stack Test (CPT) and MACT limits

Emission factors for the firing of a single Maverick rocket motor were presented in 99-112-AD (M-6), a determination that considered whether permitting was necessary for the added firing of such motors. Nineteen individual or groups of pollutants were listed, but the following table lists only those whose emissions exceeded one pound per year, based on firing 4,250 motors per year.

Pollutant	TPY
PM_{10}	19.4
NO_X	0.43
Acetylene	<.01
Magnesium	0.52

Pollutant	TPY
CO	0.06
SO_2	25.5
Aluminum	0.11
Iron	0.60

Pollutant	TPY
CO_2	25.8
HCl	27.0
Boron	<.01
Potassium	0.07

It should be noted that the emission of 25.46 TPY of SO_2 is a conservatively high estimate, based on a non-classified propellant constituent analysis. The renewal permit included a limit of 32 TPY for SO_2 for this EUG to account for emissions from the Maverick and for the MK58, which has an emission factor of 2.15 pounds of SO_2 per motor.

Additional Emission Factors

Group	Process	Pollutant	EF	Units	Reference
EUG 5C	Open Burning – Solvent	CO	0.1096	lb/gal	U.S. Army Center for Health Promotion and Preventative Medicine through use of the POLU13L computer model.
		PM_{10}	3.6227		
EUG 5D	Static Firing – MK56 Rockets	CO	1.875	lb/rocket	NSWC [1], data from 2005
		Hydrochloric Acid	135.144		
EUG 5E	Static Firing - MK58 Rockets	CO	25.57	lb/rocket	NSWC [1]
		Hydrochloric Acid	31.07		
EUG 5E	Static Firing - SRAM	CO	250	lb/missile	NSWC [1]
		Hydrochloric Acid	205		
		Chromium Cmpds	0.06		
EUG 5E	Static Firing - Hawk	CO	142.95	lb/missile	U.S. Army Materiel Test Directorate, White Sands Missile Range
		Hydrochloric Acid	132.28		
		Hydrogen Sulfide	0.24		
		Others (PM)	8.11		
EUG 5E	Static Firing - Maverick	PM_{10}	0.15 lb/lb	9.13 lb/event	Manufacturer's Data
		Sulfur Dioxide	2.0 lb/lb S	12 lb/event	
		Hydrogen Chloride	0.89 lb/lb Cl	12.7 lb/event	
EUG 5E	Static Firing - MK12 Rockets	CO	0.3788	lb/missile	Manufacturer's Data
		NOx	8.7012		
		PM	55.499		
		Pb	18.703		
EUG 6	Explosive Mixing	PM_{10}	0.2 gr/acf inlet loading & 95% control efficiency	--	Air Pollution Control Technology Fact Sheet (EPA-452/F-03-015), 7/15/2003
EUG 7	Grit Blasting	PM_{10}	3 gr/acf inlet loading & 99% control efficiency	--	Conservative PM loading rate and typical baghouse PM control efficiency.
EUG 8	Thermal Arc Spraying	PM_{10}	3 gr/acf inlet loading & 99% control efficiency	--	Conservative PM loading rate and typical baghouse PM control efficiency.
EUG 9	Explosive Sifting	PM_{10}	Scrubber Controlled - 0.2 gr/acf inlet loading & 95% control efficiency &	--	Air Pollution Control Technology Fact Sheet (EPA-452/F-03-015), 7/15/2003, Conservative PM loading rate

Group	Process	Pollutant	EF		Units	Reference
			Baghouse Controlled - 3 gr/acf inlet loading & 99% control efficiency			and typical baghouse PM control efficiency.
EUG 10	Explosive Dust Collection	PM_{10}	Scrubber Controlled - 0.2 gr/acf inlet loading & 95% control efficiency & Baghouse Controlled - 3 gr/acf inlet loading & 99% control efficiency		--	Air Pollution Control Technology Fact Sheet (EPA-452/F-03-015), 7/15/2003, Conservative PM loading rate and typical baghouse PM control efficiency.
EUG 11	Miscellaneous PM Control	PM_{10}	3 gr/acf inlet loading & 99% control efficiency		--	Conservative PM loading rate and typical baghouse PM control efficiency.
EUG 12	Explosive Meltout	PM_{10}	$1.351*10^{-4}$		lb/lb of NEW	Stack Testing August 16/17, 2005
EUG 13	Petroleum Storage Tanks	VOC	--		--	U.S.EPA TANKS 4.09
EUG 14A & 14C	Emergency Generators	NOx	0.031		lb/hp-hr	AP-42 (10/96) Table 3.3-1[2]
		CO	0.00668			
		PM	0.0022			
		SO_2	0.00205			
		VOC	0.00247			
EUG 14B	Emergency Generators	Emission Unit	P-01, 02	P-03	lb/hp-hr	Manufacturer's data with safety factors for C-1 and C-2; Ap-42 (10/96) Table 3.4-1 For C-3
		NOx	0.012	0.024		
		CO	0.0022	0.0055		
		PM	0.00022	0.0007		
		SO_2	0.00033	0.0004		
		VOC	0.0022	0.00064		
EUG 14D	Emergency Generators	NOx	0.024		lb/hp-hr	AP-42 (96) Table 3.3-1
		CO	0.0055			
		PM	0.0007			
		SO_2	0.0004			
		VOC	0.00064			
EUG 16A	Chemical Laboratory	VOC	--		--	MSDS, usage, mass balance
EUG 16B	Open Detonation DAC.Training	Criteria pollutants, HAPs	Various		lb/lb NEW	U.S. Army Dugway Proving Ground "Bang Box" testing data from August 1998
EUG 16C	Wastewater Flare	NO_X	100		lb/MMscf	AP-42 (7/98) Chapter 1.3
		CO	84			
		SO_2	0.6			
		PM/PM_{10}	7.6			
		VOC	5.5			
EUG 16D	Tar Coating	VOC	0.26		Lb/hr	Stack testing plus safety factor
EUG 16E	Paint Booths	VOC	1.92		Lb/gallon	MSDS
EUG 17	Cutters	$PM_{10}/PM_{2.5}$	0.22		Lb/hr	Onsite testing
		NO_X	2.69			

1. Naval Surface Warfare Center utilizing data from the Chemical Propulsion Information Agency (CPIA) Solid Propellant Manual and the POLU13M model.
2. John Deere engines use NSPS IIII factors for NO_X, CO, and PM.

EMISSION RATES

EUG 1G, 1P, 1N Boilers Scenario I – Natural Gas

Equipment ID	Point ID	NO_x		CO		SO_2		PM/PM_{10}		VOC	
		(lb/hr)	(TPY)	(lb/hr)	(TPY)	(lb/hr)	(TPY)	(lb/hr)	(TPY)	(lb/hr)	(TPY)
E-001	P-001	0.22	0.96	0.18	0.81	0.01	0.01	0.02	0.07	0.01	0.05
E-002	P-002	0.05	0.22	0.04	0.18	0.01	0.01	0.01	0.02	0.01	0.01
E-003	P-003	0.10	0.43	0.08	0.36	0.01	0.01	0.01	0.03	0.01	0.02
E-004	P-004	0.05	0.23	0.04	0.20	0.01	0.01	0.01	0.02	0.01	0.01
E-005	P-005	0.10	0.43	0.08	0.36	0..01	0.01	0.01	0.02	0.01	0.01
E-006	P-006	0.14	0.62	0.12	0.52	0.01	0.01	0.01	0.05	0.01	0.03
E-007	P-007	0.03	0.11	0.02	0.10	0.01	0.01	0.01	0.01	0.01	0.01
E-008	P-008	0.02	0.09	0.02	0.08	0.01	0.01	0.01	0.01	0.01	0.01
E-010	P-010	0.05	0.24	0.05	0.20	0.01	0.01	0.01	0.02	0.01	0.01
E-014	P-013	0.33	1.44	0.28	1.21	0.01	0.01	0.03	0.11	0.02	0.08
E-015	P-014	0.33	1.44	0.28	1.21	0.01	0.01	0.03	0.11	0.02	0.08
E-016	P-014	0.41	1.80	0.35	1.51	0.01	0.01	0.03	0.14	0.02	0.10
E-017	P-015A	0.49	2.16	0.41	1.81	0.00	0.01	0.04	0.16	0.03	0.12
E-018	P-015B	0.49	2.16	0.41	1.81	0.00	0.01	0.04	0.16	0.03	0.12
E-021	P-017A	0.82	3.59	0.69	3.02	0.00	0.02	0.06	0.27	0.05	0.20
E-022	P-017B	0.82	3.59	0.69	3.02	0.00	0.02	0.06	0.27	0.05	0.20
E-025	P-019A	0.82	3.59	0.69	3.02	0.00	0.02	0.06	0.27	0.05	0.20
E-026	P-019B	0.82	3.59	0.69	3.02	0.00	0.02	0.06	0.27	0.05	0.20
E-036	P-023	0.19	0.81	0.16	0.68	0.01	0.01	0.01	0.06	0.01	0.04
E-037	P-024	0.12	0.54	0.10	0.45	0.01	0.01	0.01	0.04	0.01	0.03
E-038	P-025	0.12	0.54	0.10	0.45	0.01	0.01	0.01	0.04	0.01	0.03
E-039	P-039	0.08	0.33	0.06	0.27	0.01	0.01	0.01	0.03	0.01	0.02
E-040	P-040	0.29	1.28	0.06	0.28	0.01	0.04	0.08	0.37	0.03	0.12
E-041	P-041	0.29	1.28	0.06	0.28	0.01	0.04	0.08	0.37	0.03	0.12
E-042	P-042	0.50	1.44	0.11	0.31	0.01	0.04	0.14	0.41	0.05	0.13
E-043	P-043	0.50	1.44	0.11	0.31	0.01	0.04	0.14	0.41	0.05	0.13
E-044	P-044	0.50	1.44	0.11	0.31	0.01	0.04	0.14	0.41	0.05	0.13
E-045	P-045	0.50	1.44	0.11	0.31	0.01	0.04	0.14	0.41	0.05	0.13
E-046	P-046	0.71	2.06	0.15	0.44	0.02	0.06	0.20	0.59	0.07	0.19
E-047	P-047	0.71	2.06	0.15	0.44	0.02	0.06	0.20	0.59	0.07	0.19
E-048	P-048	0.43	1.88	0.22	0.97	0.01	0.05	0.02	0.11	0.04	0.19
E-049	P-049	0.43	1.88	0.22	0.97	0.01	0.05	0.02	0.11	0.04	0.19
E-050	P-050	0.50	2.19	0.11	0.47	0.01	0.06	0.14	0.63	0.05	0.20
E-051	P-051	0.50	2.19	0.11	0.47	0.01	0.06	0.14	0.63	0.05	0.20
E-052	P-052	0.50	2.19	0.11	0.47	0.01	0.06	0.14	0.63	0.05	0.20
E-053	P-053	0.50	2.19	0.11	0.47	0.01	0.06	0.14	0.63	0.05	0.20
TEMP	TEMP	0.98	4.29	0.82	3.60	0.01	0.03	0.08	0.33	0.05	0.24
Totals		**14.44**	**58.16**	**8.10**	**34.39**	**0.32**	**0.99**	**2.35**	**8.81**	**1.18**	**4.14**

EUG 1G, 1P, 1N Boilers Scenario II – No. 2 Fuel Oil

Equipment ID	Point ID	NO_X		CO		SO_2		PM/PM_{10}		VOC	
		(lb/hr)	(TPY)	(lb/hr)	(TPY)	(lb/hr)	(TPY)	(lb/hr)	(TPY)	(lb/hr)	(TPY)
E-001	P-001	0.32	1.40	0.08	0.35	0.11	0.50	0.05	0.21	0.01	0.01
E-002	P-002	0.07	0.31	0.02	0.08	0.03	0.11	0.01	0.05	0.01	0.01
E-003	P-003	0.14	0.62	0.04	0.16	0.05	0.22	0.02	0.09	0.01	0.01
E-004	P-004	0.08	0.34	0.02	0.08	0.03	0.12	0.01	0.05	0.01	0.01
E-005	P-005	0.07	0.31	0.02	0.08	0.03	0.11	0.01	0.05	0.01	0.01
E-006	P-006	0.21	0.90	0.05	0.23	0.07	0.32	0.03	0.14	0.01	0.01
E-007	P-007	0.04	0.17	0.01	0.04	0.01	0.06	0.01	0.02	0.01	0.01
E-008	P-008	0.03	0.14	0.01	0.03	0.01	0.05	0.01	0.02	0.01	0.01
E-010	P-010	0.08	0.34	0.02	0.09	0.03	0.12	0.01	0.05	0.01	0.01

Equipment ID	Point ID	NOx		CO		SO_2		PM/PM_{10}		VOC	
		(lb/hr)	(TPY)	(lb/hr)	(TPY)	(lb/hr)	(TPY)	(lb/hr)	(TPY)	(lb/hr)	(TPY)
E-014	P-013	0.48	2.10	0.12	0.52	0.17	0.74	0.07	0.31	0.01	0.02
E-015	P-014	0.48	2.10	0.12	0.52	0.17	0.74	0.07	0.31	0.01	0.02
E-016	P-014	0.60	2.62	0.15	0.66	0.21	0.93	0.09	0.39	0.01	0.03
E-017	P-015A	0.87	3.82	0.22	0.96	0.31	1.36	0.13	0.57	0.01	0.04
E-018	P-015B	0.87	3.82	0.22	0.96	0.31	1.36	0.13	0.57	0.01	0.04
E-021	P-017A	1.50	6.55	0.37	1.64	0.53	2.32	0.22	0.98	0.02	0.07
E-022	P-017B	1.50	6.55	0.37	1.64	0.53	2.32	0.22	0.98	0.02	0.07
E-025	P-019A	1.50	6.55	0.37	1.64	0.53	2.32	0.22	0.98	0.02	0.07
E-026	P-019B	1.50	6.55	0.37	1.64	0.53	2.32	0.22	0.98	0.02	0.07
E-036	P-023	0.27	1.18	0.07	0.30	0.10	0.42	0.04	0.18	0.01	0.01
E-037	P-024	0.18	0.79	0.05	0.20	0.06	0.28	0.03	0.12	0.01	0.01
E-038	P-025	0.18	0.79	0.05	0.20	0.06	0.28	0.03	0.12	0.01	0.01
E-039	P-039	0.11	0.48	0.03	0.12	0.04	0.17	0.02	0.07	0.01	0.01
E-040	P-040	1.00	4.39	0.07	0.29	0.84	3.66	0.21	0.92	0.02	0.07
E-041	P-041	1.00	4.39	0.07	0.29	0.84	3.66	0.21	0.92	0.02	0.07
E-042	P-042	1.71	4.94	0.11	0.33	1.43	4.11	0.36	1.03	0.03	0.08
E-043	P-043	1.71	4.94	0.11	0.33	1.43	4.11	0.36	1.03	0.03	0.08
E-044	P-044	1.71	4.94	0.11	0.33	1.43	4.11	0.36	1.03	0.03	0.08
E-045	P-045	1.71	4.94	0.11	0.33	1.43	4.11	0.36	1.03	0.03	0.08
E-046	P-046	2.45	7.05	0.16	0.47	2.04	5.88	0.51	1.47	0.04	0.12
E-047	P-047	2.45	7.05	0.16	0.47	2.04	5.88	0.51	1.47	0.04	0.12
E-048	P-048	1.41	6.17	0.10	0.43	1.22	5.36	0.17	0.75	0.02	0.11
E-049	P-049	1.41	6.17	0.10	0.43	1.22	5.36	0.17	0.75	0.02	0.11
E-050	P-050	1.71	7.51	0.11	0.50	1.43	6.26	0.36	1.56	0.03	0.13
E-051	P-051	1.71	7.51	0.11	0.50	1.43	6.26	0.36	1.56	0.03	0.13
E-052	P-052	1.71	7.51	0.11	0.50	1.43	6.26	0.36	1.56	0.03	0.13
E-053	P-053	1.71	7.51	0.11	0.50	1.43	6.26	0.36	1.56	0.03	0.13
Totals		**34.48**	**133.45**	**4.32**	**17.84**	**23.56**	**88.45**	**6.31**	**23.88**	**0.66**	**2.00**

EUG 2A Painting/Surface Coating – A-Line

Equipment ID	Emission Point ID	Component	Emission (lb/hr)	Emission (TPY)
E-20569 E-20570	P-190PB	**VOC** (total)	**3.67**	**16.08**
		PM_{10}	**13.07**	**57.25**
		Xylene	0.04	0.16
		Ethylene Glycol Monobutyl Ether	0.01	0.03
		1,2,4-trimethylbenzene	<0.01	0.02
		Toluene	0.01	0.02
		Styrene	2.04	8.93
		Epichlorohydrin	0.04	0.15

EUGs 2B & 2G Painting/Surface Coating – Paint Booths

PTE was estimated for the original permit based on extrapolation to 8,760 hours per year.

Equipment ID	Emission Point ID	Building	2004 VOC Emissions	2004 PM_{10} Emissions	2004 Hours of Operation	Potential VOC Emission Rate		Potential PM_{10} Emission Rate	
			TPY	TPY	hr/yr	lb/hr	TPY	lb/hr	TPY
E-01101	P-01101	11/399	1.02	--	500	1.35	5.91	<0.01	<0.01
E-47757	P-47757	48	--	--	--	9.60	42.05	<0.01	<0.01
E-49244	P-49224	101	NA	NA	New	0.60	2.62	1.35	5.92
E-40093	P-40093	111	0.00	0.00	1000	9.60	42.05	<0.01	<0.01

Equipment ID	Emission Point ID	Building	2004 VOC Emissions	2004 PM_{10} Emissions	2004 Hours of Operation	Potential VOC Emission Rate		Potential PM_{10} Emission Rate	
			TPY	TPY	hr/yr	lb/hr	TPY	lb/hr	TPY
E-07761	P-07761	126	4.71	0.001	660	14.28	62.52	<0.01	<0.01
E-05149	P-05149	130	0.00	0.00	450	9.60	42.05	<0.01	<0.01
E-31679	P-31679	134	0.33	0.001	120	5.43	23.79	0.02	0.10
E-14201	P-14201	142	--	--	--	0.60	2.63	<0.01	<0.01
E-45619	P-45619	175	3.71	0.030	1720	4.32	18.91	0.04	0.15
E-45619	P-45619	175							
E-19801	P-19801	198	0.30	0.002	80	7.38	32.31	0.05	0.24
E-19802	P-19802	198							
E-19803	P-19803	198							
E-32484	P-32484	453	1.49	0.001	500	5.94	26.02	<0.01	<0.01
E-44482	P-44482	455	9.02	0.013	1880	9.60	42.05	0.014	0.061
E-419F	P-419F	419	0.09	2.05E-04	500	0.37	1.64	0.001	0.004
E-11399	P-11399	567	0.08	1.80E-04	500	0.31	1.37	0.001	0.003
E-08128	P-08128	454	12.93	0.036	1630	15.87	69.49	0.04	0.19
TOTALS						**94.9**	**416**	**1.57**	**6.74**

EUG 2F Fugitive Paint Emissions

PTE was estimated for the original permit based on extrapolation to 8,760 hours per year.

Emission Point ID	Pollutant	2004 Emissions (TPY)	Potential Emissions (TPY)
P-FUG1	**VOC** (Total)	10.43	45.68
	Ethylbenzene	0.01	0.04
	MEK	0.30	1.29
	Styrene	1.65	7.21
	Toluene	0.53	2.32
	Xylene	0.18	0.78

EUG 3 Solvent Emissions

PTE for VOC was estimated for the original permit based on extrapolating 2004 emissions to 8,760 hours per year. Thus, 4.49 tons of VOC divided by 2,080 hours of operation suggests average emissions of 4.32 lb/hr, which implies 18.91 TPY for continuous operation.

EUG 4 Munitions Deactivation Furnace

As discussed in the original Part 70 permit, emissions for this EUG were determined by an initial Comprehensive Performance Test in 2004 per the HWC NESHAP (HWC). The following totals represent continuous operation (8,760 hours per year) under the extreme conditions of the test.

Pollutant	TPY
Dioxin / Furan	6.8×10^{-10} (TEQ)
2,4-DNT	2.5×10^{-4}
HCl	3.12
Cl_2	0.066
HVM	5.05×10^{-4}
SVM	6.135×10^{-3}

Pollutant	TPY
LVM	1.2×10^{-4}
PM	9.65×10^{-3}
NO_X	132.9
CO	0.31
Total HC	0.088
SO_2	0.93

EUG 5G

OB Munitions Emissions

Emission Point ID	Pollutant	Emission Rate (TPY)
P-990, P-991, P-997	VOC (total)	0.049
	Naphthalene	0.011
	Phenol	0.032
	Benzene	0.006
	Carbon Monoxide	0.000
	Nitrogen Dioxide	2.477
	Sulfur Dioxide	0.563
	PM_{10}	71.322
	Lead	0.798

OB Secondary (Wood & Diesel) Emissions

Emission Point ID	Pollutant	Emission Rate	
		lb/hr	TPY
P-990, P-991, P-997	CO	16.3	17.00
	NO_X	1.27	1.32
	PM_{10}	3.08	3.20
	VOC	5.77	6.00
	SO_2	0.196	0.20

OB Secondary (Solvent) Emissions

Emission Point ID	Pollutant	Emission Rate	
		lb/hr	TPY
P-990, P-991, P-997	CO	6.03	0.08
	NO_X	<0.01	<0.01
	PM_{10}	199.25	2.49
	VOC	<0.01	<0.01
	SO_2	<0.01	<0.01

OD Munitions Emissions (2005 data)

Emission Point ID	Pollutant	Emission Rate (TPY)
P-998 & P-999	Carbon Monoxide	13.93
	Nitrogen Dioxide	4.22
	Sulfur Dioxide	0.18
	PM_{10}	393
	Lead	0.02
	Cadmium	0.02

EUG 5P Static Firing Emissions (TPY)

Emission Point ID	Pollutant	MK56	MK58	SRAM	Hawk	Maverick	MK12	Static Firing Emission Limits
P-994 P-995 P-996	CO	0.14	3.84	12.5	36.4	0.06	0.21	41.5
	PM	11.4	2.82	15.0	29.2	19.4	24.40[a]	29.2
	Aluminum oxide	11.4	2.82	15.0	26.9	-	-	29.2
	Iron chloride	0.03	0.20	0.65	0.00	-	-	0.88
	Hydrochloric acid	9.93	4.66	10.3	33.7	27.0	-	34.7
	Zirconium oxide	0.13	0.00	0.00	0.00	-	-	0.13
	Chromium compounds	0.00	0.00	0.00	0.00	-	-	0.00
	Copper (PM)	0.00	0.00	0.00	0.16	-	-	0.16
	H_2S	0.00	0.00	0.00	0.24	-	-	0.24
	Other (PM)	0.00	0.00	0.00	2.10	-	-	2.10
	SO_2	-	0.32	-	-	25.5	0.01	32.0
	Lead	-	-	-	-	-	6.54	6.54
	NO_X	-	-	-	-	0.43	4.78	4.78

[a] - Potential emissions of PM from the MK12 rocket are 30.47 TPY; however, MCAAP is requesting a limit of 24.40 TPY is order to avoid PSD review of PM.

A maximum of four missiles/rockets may be fired in any one-hour period. Emissions are calculated based on 147 MK56 items/yr, 300 MK58 items/yr, 100 SRAM items/yr, and 4,250 Mavericks/yr, 699 MK12 items/yr, but these are not limits on the items fired. Emission factors are found in a table presented earlier in this memorandum. Any combination of missiles/rockets may be fired, including types not listed in this table, provided that emission limits are not exceeded. However, no more than 509 Hawk missiles may be fired in one year, excluding any other items.

EUG 6 Explosive Mixing Emissions

Emission Point ID	Control ID	Building No.	Control Description	Fan Rating (cfm)	PM Loading (gr/cf)	PM Control Efficiency (%)	PM_{10} Emissions (lb/hr)	PM_{10} Emissions (TPY)
P-39786	C-39786	104	Wet Scrubber	2,000	0.2	95	0.17	0.75
None	None	172	None	Explosive Mixing is Inactive				
P-33205	C-33205	177	Wet Scrubber	9,670	0.2	95	0.83	3.63
P-32650	C-32650	177	Wet Scrubber	8,730	0.2	95	0.75	3.28
P-19584	C-19584	194B	Venturi Scrubber	2,200	0.2	95	0.19	0.83
P-19563	C-19563	194B	Venturi Scrubber	2,200	0.2	95	0.19	0.83
P-14202	C-14202	142	None	No control needed due to lack of small particulates in material				
P-19200	C-19590	192	Venturi Scrubber	4,800	0.2	95	0.41	1.80
P-49497	C-49497	177B	Wet Scrubber	3,700	0.2	95	0.32	1.40
P-49497	C-49497	177B	Wet Scrubber	3,700	0.2	95	0.32	1.40
P-49485	C-49485	314B	Wet Scrubber	2,000	0.2	95	0.17	0.75
TBD	TBD	187	Wet Scrubber	1,200	0.2	95	0.10	0.45
TBD	TBD	187	Wet Scrubber	1,200	0.2	95	0.10	0.45
TBD	TBD	187	Wet Scrubber	1,200	0.2	95	0.10	0.45
TBD	TBD	187	Wet Scrubber	1,200	0.2	95	0.10	0.45
TBD	TBD	187	Wet Scrubber	1,200	0.2	95	0.10	0.45
TBD	TBD	187	Wet Scrubber	1,200	0.2	95	0.10	0.45
TOTALS							**3.95**	**17.37**

EUG 7 Grit Blasting Emissions

Emission Point ID	Control ID	Building No.	Control Description	Fan Rating (cfm)	PM Loading (gr/cf)	PM Control Efficiency	PM_{10} Emissions (lb/hr)	PM_{10} Emissions (TPY)
P-52448	C-48509	134	Cartridge Filter	800	3	99	0.21	0.90
P-34302	C-34302	423	Baghouse	300	3	99	0.08	0.34
P-455GB	C-455GB	455	Cartridge Filter	2,770	3	99	0.71	3.12
P-17501	C-17501	175	Cartridge Filter	6,000	3	99	1.54	6.76
P-19001	C-19001	190	Cartridge Filter	2,200	3	99	0.57	2.48
P-A95024	C-A95024	126	Baghouse	3,160	3	99	0.81	3.56
P-198GB	C-198GB	198	Mesh Filter	8,300	3	97	6.40	28.03
P-03550	C-03550	429	Baghouse	500	3	99	0.13	0.56
P-4T0901	C-4T0901	567	Cartridge Filter	10,000	3	99	0.82	3.60
P-44730	C-44730	48	Cartridge Filter	3,000	3	99	0.77	3.38
P-419GB	C-419GB	419	Cartridge Filter	840	3	99	0.22	0.95
TOTALS							**12.26**	**53.68**

EUG 8 Thermal Arc Spraying Emissions

Emission Point ID	Control ID	Building No.	Control Description	Fan Rating (cfm)	PM Loading (gr/cf)	PM Control Efficiency	PM_{10} Emissions (lb/hr)	PM_{10} Emissions (TPY)
P-455TAS	C-455TAS	455	Cartridge Filter	1,825	3	99	0.47	2.06
P-175TAS	C-175TAS	175	Baghouse	6,627	3	99	1.70	7.46
P-190TAS	C-190TAS	190	Baghouse	6,627	3	99	1.70	7.46
P-48GB	C-48GB	48	Baghouse	7,296	3	99	1.88	8.22
TOTALS							**5.75**	**25.2**

EUG 9 Explosive Sifting Emissions

Emission Point ID	Control ID	Building No.	Control Description	Fan Rating (cfm)	PM Loading (gr/cf)	PM Control Efficiency	PM_{10} Emissions (lb/hr)	PM_{10} Emissions (TPY)
P-31888	C-31888	110	Baghouse	2,400	3	99	0.62	2.70
P-31889	C-31889	110	Baghouse	2,400	3	99	0.62	2.70
P-01060	C-01060	174	Wet Scrubber	2,510	0.2	95	0.22	0.94
P-179SIF	C-179SIF	179	Wet Scrubber	12,900	0.2	95	0.98	4.29
P-01055	C-01055	181	Baghouse	1,400	3	99	0.36	1.58
P-09484	C-09484	182	Baghouse	1,905	3	99	0.49	2.15
P-49455	C-49455	177B	Baghouse	2,500	3	99	0.64	2.82
E-194AS	P-194AS	194A	No control needed due to lack of small particulates in CXM7 material					
TBD	TBD	189	Wet Scrubber	6,000	0.2	95	0.51	2.25
TBD	TBD	183	Baghouse	3,000	3	99	0.77	3.38
TOTALS							**5.21**	**22.81**

EUG 10 Explosive Dust Collection Emissions

Emission Point ID	Control ID	Building No.	Control Description	Fan Rating (cfm)	PM Loading (gr/cf)	PM Control Efficiency	PM_{10} Emissions (lb/hr)	PM_{10} Emissions (TPY)
P-0140B	C-0140B	140	Baghouse	10,750	3	99%	2.76	12.1
P-05172	C-05172	104	Wet Scrubber	2,000	0.2	95%	0.17	0.75
P-31650	C-31650	109	Baghouse	1,800	3	99%	0.46	2.03
P-31652	C-31652	126	Wet Scrubber	7,500	0.2	95%	0.64	2.82
P-AL01	C-AL01	194B	Baghouse	11,730	3	99%	3.02	13.2
TOTALS							**7.05**	**30.9**

EUG 11 Miscellaneous PM Emissions

Emission Point ID	Control ID	Bldg No.	Description	Control Description	Fan Rating CFM	PM_{10}		PM_{10} Emissions	
						Loading (gr/cf)	Control Efficiency	Lb/hr	TPY
P-31973	C-31973	710	Wood Processing	Baghouse	5,840	3	99%	1.50	6.58
P-40824	C-40824	710	Wood Processing	Baghouse	5,840	3	99%	1.50	6.58
P-49233	C-49233	101	Cement Mixing	Baghouse	10,000	3	99%	2.57	11.3
P-31600	C-31600	454	Cement Mixing	Baghouse	2,200	3	99%	0.57	2.48
P-19259	C-19259	455	Cement Mixing	Baghouse	2,200	3	99%	0.57	2.48
P-637/760L	C-637/760L	637/760	Wood Processing	Baghouse	24,700	3	99%	6.35	27.8
P-637/760S	C-637/760S	637/760	Wood Processing	Baghouse	2,500	3	99%	0.64	2.82
P-0009C	N/A	9	Wood Processing	Baghouse	5,000	3	99%	1.29	5.63
TOTALS								**15.0**	**65.7**

EUG 12 Explosive Melt-out Emissions

Item	Description	Explosive Weight lb NEW/item	Processing Rate items/shift	Processing Rate items/hr	Processing Rate lb NEW/hr	Emission Rate Maximum Unit	Emission Rate Maximum lb/hr	PM_{10} Total Emissions [1] lb/hr	PM_{10} Total Emissions [1] TPY
MK82	500 lb Bomb	180	120	10	1800	1.35×10^{-4} Lb/lb NEW	4,800	1.14	5.0
M117 A2	750 lb Bomb	300	90	8	2400				
MK83	1000 lb Bomb	410	60	5	2050				
MK84	2000 lb Bomb	923	10	1	923				
BLU113	5,000 lb Bomb	As determined	As req.	As req.	As req.				
M106	8 inch Projectile	38	700	58	2204				
M650	8 inch Projectile	26	700	58	1508				
105-mm	105-mm Projectile	5	2880	240	1200				
155-mm	155-mm Projectile	23	672	56	1288				
Bulk TNT	TNT Re-melt	19,000	--	--	1583				
Various	Munitions	As determined	As req.	As req.	As req.				

[1] Combined emission rates for Buildings 171 (P-17123) and 186 (P-18623). The annual limit is a conservatively high value requested by the facility; the lb/hr figure assumes continuous operation to achieve 5 TPY.

EUG 13 Storage Tank Emissions

Emission Point ID	Tank Location	Description	Tank Diameter (ft)	Tank Height/Length (ft)	Tank Capacity (gallons)	2004 Throughput (gallons)	Potential Throughput (gallons)	VOC Emissions (TPY)
P-0476P	476	Diesel	8	33	12,000	209,017	880,283	<0.01
P-630F	Fuel Farm	Gasoline	8	27	10,000	105,558	444,562	3.00
P-631F	Fuel Farm	Gasoline	8	27	10,000	81,186	341,918	2.85
P-632F	Fuel Farm	Gasoline	8	27	10,000	114,169	480,827	3.02
P-633F	Fuel Farm	Diesel	8	27	10,000	76,249	321,126	<0.01
P-672F	Fuel Farm	Diesel	52	32	508,000	301,645	1,270,390	0.07
P-746F	Deact	Diesel	5	6	850	--	10,000	<0.01
P-790P	Deact	Diesel	7	14	4,000	5,811	24,473	<0.01
P-756F	569	Diesel	8	16	6,000	2,498	10,520	<0.01
P-733F	48	Diesel	7	23	5,000	535	2,253	<0.01
P-742F	105B	Diesel	8	14	5,200	--	10,000	<0.01
P-741F	110B	Diesel	8	21	7,900	--	10,000	<0.01
P-738P	129B	Diesel	8	32	10,000	700	2,948	<0.01
P-744F	136B	Diesel	8	14	5,200	1,590	6,696	<0.01
P-737F	165B	Diesel	8	32	10,000	600	2,527	<0.01
P-739F	185B	Diesel	10	33	20,000	4,100	17,267	<0.01
P-755F	1AT	Diesel	6	10	2,100	--	10,000	<0.01
P-736F	229B	Diesel	8	32	10,000	900	3,790	<0.01

Emission Point ID	Tank Location	Description	Tank Diameter (ft)	Tank Height/Length (ft)	Tank Capacity (gallons)	2004 Throughput (gallons)	Potential Throughput (gallons)	VOC Emissions (TPY)
P-743F	141B	Diesel	8	10	3,800	--	10,000	<0.01
P-732	78	Diesel	4	12	1,100	--	10,000	<0.01
P-735	78	Heavy Oil	11	17	8,000	--	10,000	<0.01
P-775	185B	Diesel	2.5	6	200	--	10,000	<0.01
P-800	165B	Diesel	4	6	575	--	10,000	<0.01
P-801F	Fuel Farm	Gasoline	7.92×7.08	36.67	12,000	--	48,000	N/A
TOTAL								**8.94**

EUG 14A Engines Subject to NSPS Subpart IIII

Emission Point ID	NOx		CO		PM		SO_2		VOC	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
P-0105G	2.50	0.63	0.54	0.13	0.18	0.04	0.17	0.04	0.20	0.05
P-0110G	6.24	1.56	1.34	0.34	0.44	0.11	0.41	0.10	0.50	0.12
P-0136G	2.50	0.63	0.54	0.13	0.18	0.04	0.17	0.04	0.20	0.05
P-036G	10.4	2.60	2.24	0.56	0.74	0.18	0.69	0.17	0.83	0.21
P-390G	0.71	0.18	0.88	0.22	0.05	0.01	0.20	0.05	0.24	0.06
P-036F	0.92	0.23	1.15	0.29	0.19	0.05	0.16	0.04	0.20	0.05
P-RTG	0.41	0.10	0.44	0.11	0.04	0.01	0.11	0.03	0.13	0.03
Totals	**23.68**	**5.93**	**7.13**	**1.78**	**1.82**	**0.44**	**1.91**	**0.47**	**2.3**	**0.57**

Emissions are calculated for 500 hrs/yr operation each generator.

EUG 14B Engines new under NESHAP Subpart ZZZZ, but not subject to NSPS Subpart IIII

Emission Point ID	NOx		CO		PM		SO_2		VOC	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
P-01GEN	35.1	35.1[1]	6.43	6.43[1]	0.64	0.64[1]	0.96	0.96[1]	6.43	6.43[1]
P-02GEN	35.1		6.43		0.64		0.96		6.43	
P-03GEN	26.88	6.72[2]	6.16	1.54[2]	0.78	0.20[2]	0.50	0.13[2]	0.72	0.18[2]
Totals	**97.1**	**41.8**	**19.0**	**7.97**	**2.06**	**0.84**	**2.42**	**1.09**	**13.6**	**6.61**

1 These subtotals are the combined emissions for P-01 and P-02 generators operating for a combined total of 2,000 hrs/yr.

2 These TPY numbers are the potential emissions for P-03GEN operating 500 hrs/yr.

EUG 14C Engines "Existing" under NESHAP Subpart ZZZZ, BHP > 500

Emission Point ID	NOx		CO		PM		SO_2		VOC	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
Bldg 194-B	32.2	8.05	6.94	1.74	2.29	0.57	2.13	0.53	2.61	0.65

Emissions are calculated for 500 hrs/yr operation each generator.

EUG 14D Engines "Existing" under NESHAP Subpart ZZZZ, BHP < 500

Although small engine emission factors are used, the calculations use the aggregate 4,166 hp of all engines to simplify the table.

Emission Point ID	NOx		CO		PM		SO_2		VOC	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
26 engines	100	25.0	22.9	5.73	2.92	0.73	1.67	0.42	2.67	0.67

EUG 16 Insignificant Activities
Laboratory Emissions

The initial Part 70 permit used 2004 emissions as a starting point to extrapolate potential emissions of 4.68 TPY of VOC from points P-34425, 26, and 27 at Bldg 152 and P-0020F at Bldg 20. More than half of the VOC is HAP, with 2.4 TPY of methanol being the most heavily represented.

DAC OD Emissions P-993

Pollutant	Annual
VHAP	15 lb/year
Carbon Monoxide	3.41TPY
Nitrogen Dioxide	0.114 TPY

Pollutant	Annual
Sulfur Dioxide	39 lb/year
PM_{10}	1.49 TPY
Metal HAP	5 lb/year

Tar Coating

The initial Part 70 permit used 2003 emission testing as a starting point to extrapolate potential emissions of 3.59 TPY of VOC from points P-190P at Bldg 192, P-49249 at Bldg 101, and P-34261 and P-34262 at Bldg 175.

Low Volume Paint Booths

Emission Point ID	Building No.	PM (lb/hr)	PM PTE (TPY)	VOC (lb/hr)	VOC PTE (TPY)
P-10301	103	--	--	0.56	2.47
P-10302	103	--	--	0.56	2.47
P-10401	104	0.45	1.99	0.19	0.84

EUG 17 Plasma Arc Cutters

The principal emissions from arc cutting are NO_X and particulate matter. There is little literature available on the topic, so MCAAP measured the flow of the existing low amp cutters. A TSI Model AM 510 aerosol monitor was used to conduct short-term sampling of both pollutants at the face of the cutting exhaust. Using an air flow meter to measure velocity, and given the area of the exhaust, a calculation of flow rate and therefore of concentrations was possible. Emission rates of 0.10 lb/hr of PM_{10} and 1.21 lb/hr of NO_X were determined for the low amp units. An assumption was made that these rates could be scaled up linearly to determine rates for the 200 amp operations. A further assumption was made that all PM_{10} is $PM_{2.5}$. Emission rates for each new cutter are 2.69 lb/hr of NO_X and 0.22 lb/hr of $PM_{10/2.5}$. PTE for the combination of all four units added under 99-112-C (M-9) is 47.12 TPY of NO_X and 3.88 TPY of $PM_{10/2.5}$. Accepting a federally-enforceable limit of 7,300 hours per year for each unit yields 39.28 TPY of NO_X and 3.23 TPY of $PM_{10/2.5}$. This total is below the 40 TPY PSD significance threshold for NO_X.

Emissions for the six booths previously added under 99-112-TV (M-5) use the same logic as for the newer booths. The oxy-acetylene cutting operations are assumed to have the same amount of emissions as the low amp plasma cutting equipment. Permitted emissions are based on use of the high amp plasma cutting equipment for all of the cutting booths to assure conservatively high results. Using the previously accepted federally-enforceable limit of 3,120 hours per year for each unit yields 25.20 TPY of NO_X and 2.04 TPY of $PM_{10/2.5}$.

The following summary combines PTE for some equipment with permitted amounts for other, thus representing maximum possible emissions, rather than authorized or even expected emission amounts.

Emissions Summary

EUG	Description	NO_x		CO		SO_2		PM/PM_{10}		VOC	
		(lb/hr)	(TPY)	(lb/hr)	(TPY)	(lb/hr)	(TPY)	(lb/hr)	(TPY)	(lb/hr)	(TPY)
1	Main Boilers I Nat. Gas	14.44	58.16	8.10	34.39	0.32	0.99	2.35	8.81	1.18	4.14
1	Main Boilers II Diesel	34.48	133.45	4.32	17.84	23.56	88.45	6.31	23.88	0.66	2.00
2A	A Line Painting	--	--	--	--	--	--	13.07	57.25	3.67	16.08
2B	Paint Booths	--	--	--	--	--	--	1.57	6.74	94.9	416
2C	Fugitive	--	--	--	--	--	--	--	--	10.43	45.68
3	Solvent	--	--	--	--	--	--	--	--	4.32	18.91
4	Deactivation Furnace	30.34	132.9	0.07	0.31	0.21	0.93	0.002	0.01	0.02	0.06
5A	OB Munitions	--	2.48	--	--	--	0.56	--	71.32	--	0.05
5B	OB - Wood & Diesel	1.27	1.32	16.30	17.00	0.20	0.20	3.08	3.20	5.77	6.00
5C	OB - Solvent	--	--	6.03	0.08	--	--	199.25	2.49	--	--
5D	OD Munitions	--	4.22	--	13.93	--	0.18	--	393.00	--	--
5E	Static Firing	--	--	--	41.5	--	32.0	--	24.40	--	--
6	Explosive Mixing	--	--	--	--	--	--	3.95	17.37	--	--
7	Grit Blasting	--	--	--	--	--	--	12.26	53.68	--	--
8	Thermal Arc Spray	--	--	--	--	--	--	5.75	25.20	--	--
9	Explosive Sifting	--	--	--	--	--	--	5.21	22.81	--	--
10	Explosive Dust	--	--	--	--	--	--	7.05	30.90	--	--
11	Miscellaneous PM	--	--	--	--	--	--	15.0	65.70	--	--
12	Explosive Melt-out	--	--	--	--	--	--	1.14	5.00	--	--
13	Storage Tanks	--	--	--	--	--	--	--	--	--	8.94
14	Engines	253	80.8	56.0	17.2	9.09	2.58	8.13	2.51	21.18	8.50
16	Insignificant Sources	--	0.11	--	3.41	--	<0.01	--	3.48	--	14.1
17	Plasma arc cutters (10)	26.9	64.5	--	--	--	--	2.20	5.27	--	--
TOTAL – (Boilers Nat. Gas)		**325.95**	**344.49**	**86.5**	**127.82**	**9.82**	**37.44**	**280.012**	**803.94**	**141.47**	**538.46**
TOTAL – (Boilers Diesel)		**345.99**	**419.78**	**82.72**	**111.27**	**33.06**	**124.9**	**283.972**	**819.01**	**140.95**	**536.32**
PREVIOUS TOTAL (Boilers Nat. Gas)		**325.95**	**344.49**	**86.5**	**127.82**	**9.82**	**37.44**	**280.012**	**799.14**	**141.47**	**538.46**
PREVIOUS TOTAL (Boilers Diesel)		**345.99**	**419.78**	**82.72**	**111.27**	**33.06**	**124.9**	**283.972**	**814.21**	**140.95**	**536.32**
DIFFERENCE (Boilers Nat. Gas)		**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
DIFFERENCE (Boiler Diesel)		**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Greenhouse Gas (GHG) Emissions

Calculating emissions of carbon dioxide equivalents (CO_2e) using only the PTE for EUG 1 combustion devices and factors from Tables A-1, A-2, C-1, and C-2 of 40 CFR 98.33 indicates that MCAAP is a major source of GHGs.

SECTION X. INSIGNIFICANT ACTIVITIES

The insignificant activities identified and justified in the application and found in OAC 252:100-8, Appendix I, are listed following. Recordkeeping for activities indicated with an asterisk, "*", is listed in the Specific Conditions.

1. Space heaters, boilers, process heaters, and emergency flares less than or equal to 5 MMBTUH heat input (commercial natural gas). Although numerous boilers have been identified in previous permits, all are now affected sources under NESHAP Subpart DDDDD, and have been moved to the appropriate section of EUG 1.

2. Emissions from stationary internal combustion engines rated less than 50 hp output. Any engines meeting these requirements are now affected sources under NESHAP Subpart ZZZZ, and are treated in EUG 14.

3. *Emissions from fuel storage/dispensing equipment operated solely for facility owned vehicles if fuel throughput is not more than 2,175 gallons/day, averaged over a 30-day period.

4. *Storage tanks with less than or equal to 10,000 gallons capacity that store volatile organic liquids with a true vapor pressure less than or equal to 1.0 psia at maximum storage temperature.

5. *Bulk gasoline or other fuel distribution with a daily average throughput less than 2,175 gallons per day, including dispensing, averaged over a 30-day period.

6. Gasoline and aircraft fuel handling facilities, equipment, and storage tanks except those subject to New Source Performance Standards and standards in 252:100-37-15, 252:100-39-30, 252:100-39-41, and 252:100-39-48.

7. *Emissions from storage tanks constructed with a capacity less than 39,894 gallons which store VOC with a vapor pressure less than 1.5 psia at maximum storage temperature.

8. Cold degreasing operations utilizing solvents that are denser than air.

9. *Welding and soldering operations utilizing less than 100 pounds of solder and 53 tons per year of electrodes.

10. Wood chipping operations not associated with the primary process operation.

11. *Torch cutting and welding of under 200,000 tons of steel fabricated per year.

12. Site restoration and/or bioremediation activities of <5 years expected duration. None listed but may be conducted in the future.

13. Hydrocarbon-contaminated soil aeration pads utilized for soils excavated at the facility only.

14. Emissions from the operation of groundwater remediation wells including but not limited to emissions from venting, pumping, and collecting activities subject to de minimis limits for air toxics (252:100-41-43) and HAPs (§112(b) of CAAA90).

15. *Non-commercial water washing operations and drum crushing operations (less than 2,250 barrels/year) of empty barrels less than or equal to 55 gallons with less than three percent by volume of residual material.
16. Hazardous waste and hazardous materials drum staging areas.

17. Sanitary sewage collection and treatment facilities other than incinerators and Publicly Owned Treatment Works (POTW). Stacks or vents for sanitary sewer plumbing traps are also included (i.e., lift station).

18. Emissions from landfills and land farms unless otherwise regulated by an applicable state or federal regulation.

19. Exhaust systems for chemical, paint, and/or solvent storage rooms or cabinets, including hazardous waste satellite (accumulation) areas.

20. Hand wiping and spraying of solvents from containers with less than 1 liter capacity used for spot cleaning and/or degreasing in ozone attainment areas. These operations are conducted as part of routine maintenance.

21. *Activities having the potential to emit no more than 5 TPY (actual) of any criteria pollutant (see instructions in Title V application). The following activities qualify.

Equipment ID	Emission Point ID	Building	Description	Activity	Construction/ Modification Date
Various	Various	Various	Asphalt Kettles	Tar lining of bombs/projectiles	Various
E-0042	P-0042F	Sewage Plant	Waste Water Flare	Combust digester off-gases	1943
E-10301	P-10301	103	Paint Booth	Painting munitions	2011
E-10302	P-10302	103	Paint Booth	Painting munitions	2011
E-10401	P-10401	104	Paint Booth	Painting munitions	2011
None	None	Various	Hoffman Vacuums	Minor cleanup	1990s
E-0020F	P-0020F	20	Lab Operations	Chemical analysis	1943/1990
E-34425	P-34425	152	Lab Fume Hood	Explosive testing	1997
E-34426	P-34426	152	Lab Fume Hood	Explosive testing	1997
E-34427	P-34427	152	Lab Fume Hood	Explosive testing	1997

SECTION XI. OKLAHOMA AIR POLLUTION CONTROL RULES

OAC 252:100-1 (General Provisions) [Applicable]
Subchapter 1 includes definitions but there are no regulatory requirements.

OAC 252:100-2 (Incorporation by Reference) [Applicable]
This subchapter incorporates by reference applicable provisions of Title 40 of the Code of Federal Regulations listed in OAC 252:100, Appendix Q. These requirements are addressed in the "Federal Regulations" section.

OAC 252:100-3 (Air Quality Standards and Increments) [Applicable]
Subchapter 3 enumerates the primary and secondary ambient air quality standards and the significant deterioration increments. At this time, all of Oklahoma is in "attainment" of these standards.

OAC 252:100-5 (Registration, Emissions Inventory and Annual Operating Fees) [Applicable]
Subchapter 5 requires sources of air contaminants to register with Air Quality, file emission inventories annually, and pay annual operating fees based upon total annual emissions of regulated pollutants. Emission inventories were submitted and fees paid for previous years as required.

OAC 252:100-8 (Permits for Part 70 Sources) [Applicable]
Part 5 includes the general administrative requirements for Part 70 permits. Any planned changes in the operation of the facility that result in emissions not authorized in the permit and that exceed the "Insignificant Activities" or "Trivial Activities" thresholds require prior notification to AQD

and may require a permit modification. Insignificant activities refer to those individual emission units either listed in Appendix I or whose actual calendar year emissions do not exceed the following limits.

- 5 TPY of any one criteria pollutant
- 2 TPY of any one hazardous air pollutant (HAP) or 5 TPY of multiple HAPs or 20% of any threshold less than 10 TPY for a HAP that the EPA may establish by rule

Emission limitations and operational requirements necessary to assure compliance with all applicable requirements for all sources are taken from the existing operating permit or from the current application, or are developed from the applicable requirement.

This project is a major modification at an existing major facility since emissions are greater than 100 TPY of any criteria pollutant and the emissions increase from at least one pollutant exceeds the significance thresholds. This subchapter is applicable for this project and BACT analysis, air quality impact analysis and Class I area impact analysis are required.

OAC 252:100-9 (Excess Emissions Reporting Requirements) [Applicable]
Except as provided in OAC 252:100-9-7(a)(1), the owner or operator of a source of excess emissions shall notify the Director as soon as possible, but no later than 4:30 p.m. the following working day of the first occurrence of excess emissions in each excess emissions event. No later than (30) calendar days after the start of any excess emission event, the owner or operator of an air contaminant source from which excess emissions have occurred, shall submit a report for each excess emission event describing the extent of the event and the actions taken by the owner or operator of the facility in response to this event. Request for mitigation, as described in OAC 252:100-9-8, shall be included in the excess emission event report. Additional reporting may be required in the case of ongoing emission events and in the case of excess emission reporting required by 40 CFR Parts 60, 61, or 63.

OAC 252:100-13 (Open Burning) [Applicable]
Open burning of refuse and other combustible material is prohibited except as authorized in the specific examples and under the conditions listed in this subchapter. The OB/OD range is an approved method for the "elimination of hazards."

OAC 252:100-19 (Particulate Matter (PM)) [Applicable]
Section 19-4 regulates emissions of PM from new and existing fuel-burning equipment, with emission limits based on maximum design heat input rating. Appendix C specifies a PM emission limitation of 0.60 lb/MMBTU for all equipment with a heat input rating of 10 MMBTUH or less. For heat input greater than 10 MMBTUH and less than 1,000 MMBTUH, the allowable emission rate E for heat input X (in MMBTUH) is determined from $E = 1.042808\ X^{-0.238561}$ as defined in OAC 252:100 Appendix C.

Equipment ID	Heat Input MMBTUH	Fuel Type	PM Emissions in lb/MMBTU	
			Expected	Allowable
E-001	2.24	Gas	0.0075	0.600
E-002	0.5	Gas	0.0075	0.600
E-003	0.99	Gas	0.0075	0.600
E-004	0.54	Gas	0.0075	0.600

Equipment ID	Heat Input MMBTUH	Fuel Type	PM Emissions in lb/MMBTU	
			Expected	Allowable
E-005	0.5	Gas	0.0075	0.600
E-006	1.44	Gas	0.0075	0.600
E-007	0.264	Gas	0.0075	0.600
E-008	0.216	Gas	0.0075	0.600
E-009	1.62	Oil	0.0214	0.600
E-010	0.549	Gas	0.0075	0.600
E-014	3.348	Gas-Oil	0.0214	0.600
E-015	3.348	Gas-Oil	0.0214	0.600
E-016	4.19	Gas-Oil	0.0214	0.600
E-017	6.1	Gas-Oil	0.0214	0.600
E-018	6.1	Gas-Oil	0.0214	0.600
E-021	10.463	Gas-Oil	0.0214	0.596
E-022	10.463	Gas-Oil	0.0214	0.596
E-025	10.461	Gas-Oil	0.0214	0.596
E-026	10.461	Gas-Oil	0.0214	0.596
E-036	1.883	Gas-Oil	0.0214	0.600
E-037	1.26	Gas-Oil	0.0214	0.600
E-038	1.26	Gas-Oil	0.0214	0.600
E-039	0.76	Gas	0.0075	0.600
E-040	8.165	Gas-Oil	0.0250	0.600
E-041	8.165	Gas-Oil	0.0250	0.600
E-042	14.645	Gas-Oil	0.0214	0.550
E-043	14.645	Gas-Oil	0.0214	0.550
E-044	14.645	Gas-Oil	0.0214	0.550
E-045	14.645	Gas-Oil	0.0214	0.550
E-046	20.925	Gas-Oil	0.0214	0.505
E-047	20.925	Gas-Oil	0.0214	0.505
E-048	12.247	Gas-Oil	0.0140	0.577
E-049	12.247	Gas-Oil	0.0140	0.577
E-050	14.287	Gas-Oil	0.0250	0.553
E-051	14.287	Gas-Oil	0.0250	0.553
E-052	14.287	Gas-Oil	0.0250	0.553
E-053	14.287	Gas-Oil	0.0250	0.553
TEMP	10.04	Gas	0.0075	0.600

Section 19-12 limits emissions of industrial processes based upon their process weight rates. The emission rate in pounds per hour (E) is not to exceed the rate calculated using the process weight rate in tons per hour (P), for process rates up to 60,000 lb/hr using the formula in Appendix G ($E = 4.10 \times P^{0.67}$) and for process rates over 60,000 lb/hr ($E = 55 \times P^{0.11} - 40$). The following table lists the process weight rates and the allowable emissions for each process.

Emission Point ID	Building No.	Process Weight Rate (tons/hr)	PM Emissions (lb/hr)	
			Expected	Allowable
P-39786	104	13	0.17	22.863
P-33205	177*	13	0.83	22.863
P-32650	177	13	0.75	22.863
P-19584	194B	13	0.19	22.863
P-19563	194B	13	0.19	22.863
P-14202	142	13	0.15	22.863
P-19200	192	13	0.41	22.863
P-48509	134	13	0.90	22.863
P-34302	423	13	0.08	22.863
P-455GB	455	13	0.71	22.863

Emission Point ID	Building No.	Process Weight Rate (tons/hr)	PM Emissions (lb/hr)	
			Expected	Allowable
P-17501	175	13	1.54	22.863
P-19001	190	13	0.57	22.863
P-A95024	126	13	0.81	22.863
P-198GB	198	13	6.40	22.863
P-03550	429	13	0.13	22.863
P-4T0901	567	13	0.82	22.863
P-48GRIT	48	13	0.77	22.863
P-455TAS	455	13	0.47	22.863
P-175TAS	175	13	1.70	22.863
P-190TAS	190	13	1.70	22.863
P-48TAS	48	13	1.88	22.863
P-31888	110	13	0.62	22.863
P-31889	110	13	0.62	22.863
P-01060	174	13	0.22	22.863
P-179SIF	179	13	0.98	22.863
P-01055	181	13	1.29	22.863
P-09484	182	13	1.29	22.863
P-0140B	140	13	2.76	22.863
P-39453	201	13	0.13	22.863
P-31652	126	13	0.64	22.863
P-40824	757	0.5	1.50	2.577
P-31600	454	0.5	0.57	2.577
P-19259	455	0.5	0.57	2.577
P-0009C	9	0.5	1.29	2.577
P-637/760L	637/760	2	6.35	6.523
P-637/760S	637/760	2	0.64	6.523
Melt Out	Various	2.40	1.14	7.371

The facility maintains process and/or particulate control devices such that the PM emissions are well within the allowable for the process weight of materials.

OAC 252:100-25 (Visible Emissions and Particulates) [Applicable]
No discharge of greater than 20% opacity is allowed except for short-term occurrences that consist of not more than one six-minute period in any consecutive 60 minutes, not to exceed three such periods in any consecutive 24 hours. In no case shall the average of any six-minute period exceed 60% opacity. The facility fuel-burning equipment is maintained properly to ensure that normal operation results in zero opacity. PM emitting sources are controlled by various PM control devices, so that normal operation results in zero opacity. OB/OD/Static firing operations take less than the six-minute averaging period and thus will also meet these restrictions.

OAC 252:100-29 (Fugitive Dust) [Applicable]
Subchapter 29 prohibits the handling, transportation, or disposition of any substance likely to become airborne or windborne without taking "reasonable precautions" to minimize emissions of fugitive dust. No person shall cause or permit the discharge of any visible fugitive dust emissions beyond the property line on which the emissions originate in such a manner as to damage or to interfere with the use of adjacent properties, or cause air quality standards to be exceeded, or to interfere with the maintenance of air quality standards. Under normal operating conditions, this facility will not cause a problem in this area due to the size of the facility and the distance to surrounding boundaries. Therefore it is not necessary to require specific precautions be taken.

OAC 252:100-31 (Sulfur Compounds) [Applicable]
Part 5 limits sulfur dioxide emissions from new equipment (constructed after July 1, 1972). All of the generator engines and all but a few of the boilers at the facility are "new." For gaseous fuels, the limit is 0.2 lbs/MMBTU heat input; and for liquid fuels, the limit is 0.8 lbs/MMBTU. AP-42 (10/96) lists SO_2 emissions from diesel-powered engines at 0.29 lb/MMBTU. Table 1.4-2 of AP-42 (7/98) lists SO_2 emissions at 0.0006 lb/MMBTU for natural gas fuel and Table 1.3-1 of AP-42 (5/10) lists SO_2 emissions at 0.007 lb/MMBTU for diesel fuel. The permit requires the use of commercial pipeline-grade natural gas or No. 2 diesel with a sulfur content of less than or equal to 0.05% for all fuel-burning equipment to ensure compliance with Subchapter 31.

OAC 252:100-33 (Nitrogen Oxides) [Not Applicable]
This subchapter limits new gas-fired and liquid-fired fuel-burning equipment with rated heat input greater than or equal to 50 MMBTUH to emissions of 0.20 and 0.30 lbs (respectively) of NO_X per MMBTU, three-hour average. There are no equipment items that exceed the 50 MMBTUH threshold.

OAC 252:100-35 (Carbon Monoxide) [Not Applicable]
This subchapter affects gray iron cupolas, blast furnaces, basic oxygen furnaces, petroleum catalytic cracking units, and petroleum catalytic reforming units. There are no affected sources.

OAC 252:100-37 (Volatile Organic Compounds) [Part 3 & Part 7 Applicable]
Part 3 requires storage tanks constructed after December 28, 1974, with a capacity of 400 gallons or more and storing a VOC with a vapor pressure greater than 1.5 psia to be equipped with a permanent submerged fill pipe or with an organic vapor recovery system. Most facility gasoline storage tanks were constructed in 1971. The 12,000-gallon gasoline storage tank is subject. All other tanks store diesel or heavy oil with a vapor pressure less than 1.5 psia.
Part 3 requires loading facilities with a throughput equal to or less than 40,000 gallons per day to be equipped with a system for submerged filling of tank trucks or trailers if the capacity of the vehicle is greater than 200 gallons. This facility does not have the physical equipment (loading arm and pump) to conduct this type of loading. Therefore, this requirement is not applicable.
Part 5 limits the VOC content of coatings used in coating lines or operations. The coating activity is grandfathered and not subject to these limitations.
Part 7 requires fuel-burning equipment to be operated and maintained to minimize emissions of VOC. The equipment at this location is subject to this requirement.
Part 7 requires effluent water separators which receive water containing more than 200 gallons per day of any VOC to be equipped with vapor control devices. The small separators do not receive more than 200 gallons of any VOC.

OAC 252:100-42 (Control of Toxic Air Contaminants (TAC)) [Applicable]
This Subchapter regulates toxic air contaminants (TAC) that are emitted into the ambient air in areas of concern (AOC). Any work practice, material substitution, or control equipment required by the Department prior to June 11, 2004, to control a TAC, shall be retained unless a modification is approved by the Director. Since no AOC has been designated anywhere in the state, there are no specific requirements for this facility at this time.

OAC 252:100-43 (Sampling and Testing Methods) [Applicable]
This subchapter provides general requirements for testing, monitoring and recordkeeping and applies to any testing, monitoring or recordkeeping activity conducted at any stationary source. To determine compliance with emissions limitations or standards, the Air Quality Director may

require the owner or operator of any source in the state of Oklahoma to install, maintain and operate monitoring equipment or to conduct tests, including stack tests, of the air contaminant source. All required testing must be conducted by methods approved by the Air Quality Director and under the direction of qualified personnel. A notice-of-intent to test and a testing protocol shall be submitted to Air Quality at least 30 days prior to any EPA Reference Method stack tests. Emissions and other data required to demonstrate compliance with any federal or state emission limit or standard, or any requirement set forth in a valid permit shall be recorded, maintained, and submitted as required by this subchapter, an applicable rule, or permit requirement. Data from any required testing or monitoring not conducted in accordance with the provisions of this subchapter shall be considered invalid. Nothing shall preclude the use, including the exclusive use, of any credible evidence or information relevant to whether a source would have been in compliance with applicable requirements if the appropriate performance or compliance test or procedure had been performed.

The following Oklahoma Air Quality Rules are not applicable to this facility.

OAC 252:100-7	Minor Source	not in source category
OAC 252:100-11	Alternative Emissions Reduction	not requested
OAC 252:100-23	Cotton Gins	not type of emission unit
OAC 252:100-24	Grain Elevators	not in source category
OAC 252:100-39	VOC in Non-Attainment Areas	not in source category
OAC 252:100-47	Landfills	not type of source category

SECTION XII. FEDERAL REGULATIONS

PSD, 40 CFR Part 52 [Not Applicable]

The facility has emissions of NO_2, PM_{10} and VOC in excess of 250 TPY and is a major stationary source. Any future emission increases must be evaluated for PSD if they exceed a significance level (100 TPY CO, 40 TPY NO_X, 40 TPY SO_2, 40 TPY VOC, 25 TPY PM, 15 TPY PM_{10}, 0.6 TPY lead, and 75,000 TPY CO_2e). The emission increases from this modification exceed the significance level for lead. Therefore, a PSD review, including BACT analysis and air impact analysis, has been completed.

NSPS, 40 CFR Part 60 [Subparts Dc & IIII Applicable]

Subpart D (Fossil Fuel Fired Steam Generators) affects steam generating units (boilers) with a rated heat input greater than 250 MMBTUH that commenced construction, reconstruction, or modification after August 17, 1971. All boilers are rated at less than 250 MMBTUH, so none is affected.

Subpart Db (Industrial-Commercial-Institutional Steam Generating Units) affects boilers with a rated heat input above 100 MMBTUH that commenced construction, reconstruction, or modification after June 19, 1984. All boilers are rated at less than 100 MMBTUH, so none is affected.

Subpart Dc, (Small Industrial-Commercial-Institutional Steam Generating Units) affects steam generating units constructed after June 9, 1989, and with capacity between 10 and 100 MMBTUH. Except for the twelve Cleaver-Brooks boilers (E-042 thru E-053) constructed in 2015 and 2017, all boilers rated greater than 10 MMBTUH were constructed prior to June 9, 1989. These twelve units are subject to 30-day rolling average SO_2 limits when combusting oil. Compliance may be demonstrated through supplier's certification of the fuel.

Subpart K, VOL Storage Vessels. This subpart regulates hydrocarbon storage tanks larger than 40,000 gallons capacity and commenced after June 11, 1973, and prior to May 19, 1978. Tank 672 (the only tank above the size threshold) was constructed in 1971, prior to the effective date.
Subpart Ka, VOL Storage Vessels. This subpart regulates hydrocarbon storage tanks larger than 40,000 gallons capacity and commenced after May 18, 1978, and prior to July 23, 1984. Twelve tanks were constructed during this period, but none has capacity 40,000 gallons or greater, so no tank is an affected facility.
Subpart Kb, VOL Storage Vessels. This subpart regulates hydrocarbon storage tanks larger than 19,813 gallons capacity and built after July 23, 1984. Four tanks were constructed after July 1984, but none has capacity equal to or exceeding the threshold volume, so there are no affected facilities.
Subpart IIII (Stationary Compression Ignition Internal Combustion Engines) affects stationary CI ICE that commence construction after July 11, 2005, that are manufactured after April 1, 2006, that are not fire pump engines or that modify or reconstruct their stationary CI ICE after July 11, 2005. Most of the engines at the facility were constructed before the earliest date of any applicable section of this subpart and are not affected. Seven of the emergency generators at MCAAP are "new" engines subject to this subpart.
The Cummins engines and the John Deere engines are associated with emergency generators and are affected under 40 CFR 60.4200(a)(2)(i). Fuel requirements are found in §60.4207. The new engines are currently subject to §4207(b), which states that the diesel fuel must meet the requirements of 40 CFR 80.510(b). Certification that the engines meet the emission standards for new marine CI engines in 40 CFR 89.112, per §4202(a)(2), is required by §4205(b). Operating and maintenance provisions are described in §4211. An initial notification is not needed for emergency stationary internal combustion engines, per §4214(b).

NESHAP, 40 CFR Part 61 [Not Applicable]
There are no emissions of any of the regulated pollutants: arsenic, asbestos, benzene, beryllium, coke oven emissions, mercury, radionuclides, or vinyl chloride [except for trace amounts of benzene and mercury].

NESHAP, 40 CFR Part 63 [Subparts EEE, ZZZZ, and DDDDD Applicable]
Subpart EEE (Hazardous Waste Combustor) affects operations and emissions of the Deactivation Furnace. The source is subject to testing, recordkeeping and work practice requirements. An extensive review of these requirements was presented in the Section III discussion of EUG 4.
Subpart MMMM (Surface Coating of Miscellaneous Metal Parts & Products) exempts United States military facilities.
Subpart ZZZZ (Reciprocating Internal Combustion Engines (RICE)) affects new and existing engines at major and area sources. There are seven engines that are classified as "new" under §6590(a)(2) of this subpart. As emergency engines, they are exempt from all requirements of the subpart but initial notification, per §6600(c). All other engines are "existing" engines less than 500 hp, for which §6602 shows that emission limits and operating and maintenance requirements are listed in Table 2c. Fuel requirements for all CI engines rated at more than 100 hp are found in §6604, and become effective January 1, 2015. General monitoring requirements for these engines are found in §6625(e), while (f) requires that each have a non-resettable hour meter. Subparagraphs 6625(i) and (j) offer alternatives to certain conditions contained in Table 2c. Table 6 displays requirements for demonstrating continuous compliance. Application for this permit satisfies the notification required by §6645. Recordkeeping requirements are addressed in §6655. Operations of emergency engines are limited to those occasions when electric power from the local utility is interrupted plus 50 hours per year in non-emergency situations. If any of these generators is used

beyond the restrictions for "emergency" use, MCAAP must comply with the applicable requirements.

Subpart DDDDD (Industrial, Commercial and Institutional Boilers and Process Heaters) establishes national emission limitations and work practice standards for HAPs emitted from industrial, commercial, and institutional boilers and process heaters located at major sources of HAP. This subpart also established requirements to demonstrate initial and continuous compliance with the emission limitations and work practice standards. The two new Cleaver Brooks CBEX boilers (E-048 thru E-049) will become subject to the work practice standards of this subpart.

Subpart XXXXXX, Nine Metal Fabrication and Finishing Source Categories. This subpart affects area sources that are primarily engaged in the operations in one of the nine source categories listed below:

(1) Electrical and Electronic Equipment Finishing Operations;
(2) Fabricated Metal Products;
(3) Fabricated Plate Works (Boiler Shops);
(4) Fabricated Structural Metal Manufacturing;
(5) Heating Equipment, except Electric;
(6) Industrial Machinery and Equipment Finishing Operations;
(7) Iron and Steel Forging;
(8) Primary Metal Products Manufacturing; and
(9) Valves and Pipe Fittings.

This facility is not one of the affected source categories and is also not an area source of HAP.

Defense Land Systems and Miscellaneous Equipment (Military MACT) may potentially be applicable, but has not been proposed as of 2018.

CAM, 40 CFR Part 64 [Applicable]

Compliance Assurance Monitoring (CAM), as published in the Federal Register on October 22, 1997, applies to any pollutant specific emission unit at a major source that is required to obtain a Title V permit, if it meets all of the following criteria.

- It is subject to an emission limit or standard for an applicable regulated air pollutant
- It uses a control device to achieve compliance with the applicable emission limit or standard
- It has potential emissions, prior to the control device, of the applicable regulated air pollutant of 100 TPY

Monitoring of emissions per the standards of NESHAP Subpart EEE is considered presumptively acceptable monitoring in accordance with 40 CFR 64.4(b)(4). The required explanation of the applicability is in the applicability discussion for Subpart EEE.

Numerous activities in EUGs 7, 8, 9, 10, and 11 meet the three criteria, and are subject to CAM effective with this TVR permit. A Specific Condition addresses CAM.

Chemical Accident Prevention Provisions, 40 CFR Part 68 [Not Applicable]

This facility does not process or store more than the threshold quantity of any regulated substance (Section 112r of the Clean Air Act 1990 Amendments). More information on this federal program is available on the web page: *www.epa.gov/rmp*.

Stratospheric Ozone Protection, 40 CFR Part 82 [Subpart A and F Applicable]
These standards require phase out of Class I & II substances, reductions of emissions of Class I & II substances to the lowest achievable level in all use sectors, and banning use of nonessential products containing ozone-depleting substances (Subparts A & C); control servicing of motor vehicle air conditioners (Subpart B); require Federal agencies to adopt procurement regulations which meet phase out requirements and which maximize the substitution of safe alternatives to Class I and Class II substances (Subpart D); require warning labels on products made with or containing Class I or II substances (Subpart E); maximize the use of recycling and recovery upon disposal (Subpart F); require producers to identify substitutes for ozone-depleting compounds under the Significant New Alternatives Program (Subpart G); and reduce the emissions of halons (Subpart H).

This facility does not produce consume, recycle, import, or export any controlled substances or controlled products as defined in this part other than the refrigerant R-22 for maintenance and servicing of air conditioning units. To the extent that the facility has air-conditioning units that apply, the permit requires compliance with Part 82.

SECTION XIII. INSPECTION & COMPLIANCE STATUS

Inspection
A Full Compliance Evaluation was performed by DEQ Environmental Specialist Joe Drummond (ROAT) on March 8-10, 2016. Leah Thomas and Darrell Elliott were present for the facility. No violations were noted. A permitting visit to the facility occurred on April 17, 2014. DEQ Regional Office at Tulsa permit writers Herb Neumann and Stepfanie Shaulis, along with Program Manager Rhonda Jeffries met with MCAAP environmental personnel Darrell Elliott and Leah Thomas. The purpose of the visit was to gather information, and did not constitute a formal inspection.

Tier Classification and Public Review
This application has been determined to be Tier II based on the request for a construction permit for an existing Part 70 source.

Notice of application for a Tier II permit was published in the McAlester News-Capital on February 17, 2017. The application is available for review at the McAlester Public Library at 401 N 2nd St., McAlester, OK 74501, or at the Oklahoma City office of the Air Quality Division. A Notice of Draft Permit was published in the McAlester News-Capital on April 12, 2018 and the draft was available for a 30 day public review.

The applicant has submitted an affidavit that they are not seeking a permit for land use or for any operation upon land owned by others without their knowledge. The affidavit certifies that the applicant owns the real property.

The proposed permit was sent to EPA Region VI for a 45-day review. Information on all permit actions is available for review by the public in the Air Quality section of the DEQ Web page at *http://www.deq.state.ok.us*. This site is not within 50 miles of the Oklahoma border.

Fee Paid
A Part 70 construction fee of $5,000 has been paid.

SECTION XIV. SUMMARY

There are no active Air Quality compliance or enforcement issues that would affect the issuance of this permit. Issuance of the Part 70 construction permit is recommended.

SCOTT A. THOMPSON
Executive Director

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY

MARY FALLIN
Governor

JUN 12 2018

McAlester Army Ammunition Plant
Attn.: Darrell Elliott, Environmental Director
1 C-Tree Road
McAlester, Oklahoma 74501-9002

Permit Number: **2012-672-C (M-7) PSD**
Permit Writer: Ryan Buntyn

SUBJECT: Facility: McAlester Army Ammunition Plant (Facility ID 923)
Location: Two miles southwest of McAlester

Dear Mr. Elliott:

Enclosed is the permit authorizing construction of the referenced facility. Please note that this permit is issued subject to standard and specific conditions, which are attached. These conditions must be carefully followed since they define the limits of the permit and will be confirmed by periodic inspections.

Based on the information provided, the proposed operations may be performed through a Part 70 construction permit.

Also note that you are required to annually submit an emissions inventory for this facility. An emissions inventory must be completed on approved AQD forms and submitted (hardcopy or electronically) by April 1st of every year. Any questions concerning the form or submittal process should be referred to the Emissions Inventory Staff at (405) 702-4100.

Thank you for your cooperation. If you have any questions, please refer to the permit number above and contact the permit writer at (405) 702-4100.

Sincerely,

Phillip Fielder, P.E.
AIR QUALITY DIVISION

PART 70 PERMIT

AIR QUALITY DIVISION
STATE OF OKLAHOMA
DEPARTMENT OF ENVIRONMENTAL QUALITY
707 N. ROBINSON, SUITE 4100
P.O. BOX 1677
OKLAHOMA CITY, OKLAHOMA 73101-1677

Permit No. 2012-672-C (M-7) PSD

McAlester Army Ammunition Plant,

having complied with the requirements of the law, is hereby granted permission to construct all the sources within their boundaries in Pittsburg County, Oklahoma, subject to standard conditions dated June 21, 2016 and specific conditions, both attached.

In the absence of commencement of construction, this permit shall expire 18 months from the issuance date, except as authorized under Section VIII of the Standard Conditions.

Director, DEQ

6-11-18
Date

PERMIT TO CONSTRUCT
AIR POLLUTION CONTROL FACILITY
SPECIFIC CONDITIONS

McAlester Army Ammunition Plant
Ammunition Manufacturing Plant **Permit No. 2012-672-C (M-7) PSD**

The permittee is authorized to construct in conformity with the specifications submitted to Air Quality Division on February 14, 2017 and subsequent information received on January 24, 2018 and March 14, 2018. The Evaluation Memorandum dated June 6, 2018, explains the derivation of applicable permit requirements and estimates of emissions; however, it does not contain operating limitations or permit requirements. Continuing operation under this permit constitutes acceptance of and consent to the conditions contained herein.

1. Points of emissions and emission limitations for each point. [OAC 252:100-8-6(a)]

EUG 1 Boilers

a) All boilers are subject to NESHAP Subpart DDDDD and shall comply with all applicable provisions. [40 CFR Part 63, Subpart DDDDD]
   i. Emission Limits and Work Practice Standards [40 CFR 63.7499 and 63.7500]
   ii. General Compliance Requirements [40 CFR 63.7505]
   iii. Testing, Fuel Analyses, and Initial Compliance Requirements [40 CFR 63.7510 to 63.7533]
   iv. Continuous Compliance Requirements [40 CFR 63.7535 to 63.7541]
   v. Notification, Reports, and Records [40 CFR 63.7545 to 63.7560]
   vi. Other Requirements and Information [40 CFR 63.7565 to 63.7575]

b) Facility boilers may burn commercial grade natural gas or No. 2 low sulfur diesel (<0.05%w).

EUG 1G Grandfathered Boilers

There are no emission limits applied to these units under Title V. However, they are limited to the existing equipment as it is.

Equip. ID	Point ID	Building	Manufacturer	Heat Input MMBTUH	National Board #	Model No.	Serial No.	Construction/ Mod. Date
E-001	P-001	1	FIA*	2.24	N/A	N/A	N/A	1971**
E-002	P-002	2	FIA*	0.5	N/A	N/A	N/A	1998
E-003	P-003	4&405	FIA*	0.99	N/A	N/A	N/A	1998
E-004	P-004	5	FIA*	0.54	N/A	N/A	N/A	1971**
E-005	P-005	7	FIA*	0.5	N/A	N/A	N/A	1998
E-006	P-006	11	FIA*	1.44	N/A	N/A	N/A	1943
E-007	P-007	29	FIA*	0.264	N/A	N/A	N/A	1953**
E-008	P-008	30	FIA*	0.216	N/A	N/A	N/A	1942**
E-010	P-010	83	FIA*	0.549	N/A	N/A	N/A	1974
E-014	P-013	105C	FIA*	3.348	N/A	N/A	N/A	1942**
E-015	P-014	108B	FIA*	3.348	N/A	N/A	N/A	1976**
E-016	P-014	108B	FIA*	4.19	N/A	N/A	N/A	1976**
E-025	P-019A	165B	Cleaver Brooks	10.461	27441	CB 200-250	L-54363	1972
E-026	P-019B	165B	Cleaver Brooks	10.461	27352	CB 200-250	L-54362	1972
E-036	P-023	569	FIA*	1.883	N/A	N/A	N/A	1942

Equip. ID	Point ID	Building	Manufacturer	Heat Input MMBTUH	National Board #	Model No.	Serial No.	Construction/ Mod. Date
E-037	P-024	759	FIA*	1.26	N/A	N/A	N/A	1994
E-038	P-025	759	FIA*	1.26	N/A	N/A	N/A	1994
E-039	P-039	35	FIA*	0.76	N/A	N/A	N/A	1998

*FIA = Formerly Insignificant Activities **Currently out of service or non-operational

EUG 1P Permitted Boilers

Equip. ID	Point ID	Bldg	Manufacturer	Heat Input MMBTUH	National Board #	Model No.	Serial No.	Const./ Mod. Date
E-017	P-015A	110B	York-Shipley	6.1	14458	SPHC-150-N2 95872	74-8455H-60612	1974
E-018	P-015B	110B	York-Shipley	6.1	14459	SPHC-150-N2 95872	74-8455H-60612	1974
E-021	P-017A	136B	Kewanee Boiler	10.463	26629	H2S-250-GO	P-3430	1975
E-022	P-017B	136B	Kewanee Boiler	10.463	26628	H2S-250-GO	P-3429	1975
E-040	P-040	141B	Cleaver Brooks	8.165	A59576645	CBEX Elite-200-200-150ST	T5334-1-2	2016
E-041	P-041	141B	Cleaver Brooks	8.165	A59576641	CBEX Elite-200-200-150ST	T5334-1-1	2016
TEMP	TEMP	141B	Abco	10.04	2425	NA	8651	1987

Limits for EUG 1P Boilers Scenario I – Natural Gas

Equipment ID	NO_X		CO		SO_2		PM/PM_{10}		VOC	
	Lb/hr	TPY	Lb/hr	TPY	Lb/hr	TPY	Lb/hr	TPY	Lb/hr	TPY
E-017	0.49	2.16	0.41	1.81	0.00	0.01	0.04	0.16	0.03	0.12
E-018	0.49	2.16	0.41	1.81	0.00	0.01	0.04	0.16	0.03	0.12
E-021	0.82	3.59	0.69	3.02	0.00	0.02	0.06	0.27	0.05	0.20
E-022	0.82	3.59	0.69	3.02	0.00	0.02	0.06	0.27	0.05	0.20
E-040	0.29	1.28	0.06	0.28	0.01	0.04	0.08	0.37	0.03	0.12
E-041	0.29	1.28	0.06	0.28	0.01	0.04	0.08	0.37	0.03	0.12
TEMP	0.98	4.29	0.82	3.60	0.01	0.03	0.08	0.33	0.05	0.24

Limits for EUG 1P Boilers Scenario II – No. 2 Fuel Oil

Equipment ID	NO_X		CO		SO_2		PM/PM_{10}		VOC	
	Lb/hr	TPY	Lb/hr	TPY	Lb/hr	TPY	Lb/hr	TPY	Lb/hr	TPY
E-017	0.87	3.82	0.22	0.96	0.31	1.36	0.13	0.57	0.01	0.04
E-018	0.87	3.82	0.22	0.96	0.31	1.36	0.13	0.57	0.01	0.04
E-021	1.50	6.55	0.37	1.64	0.53	2.32	0.22	0.98	0.02	0.07
E-022	1.50	6.55	0.37	1.64	0.53	2.32	0.22	0.98	0.02	0.07
E-040	1.00	4.39	0.07	0.29	0.84	3.66	0.21	0.92	0.03	0.12
E-041	1.00	4.39	0.07	0.29	0.84	3.66	0.21	0.92	0.03	0.12

EUG 1N NSPS Boilers

Equip. ID	Point ID	Building	Manufacturer	Heat Input MMBTUH	National Board #	Model No.	Serial No.	Construction/ Mod. Date
E-042	P-042	185B	Cleaver Brooks	14.287	19416	CBEX200-350-150ST	T5096-1-1	2015
E-043	P-043	185B	Cleaver Brooks	14.287	19429	CBEX200-350-150ST	T5096-1-4	2015
E-044	P-044	185B	Cleaver Brooks	14.287	19419	CBEX200-350-150ST	T5096-1-3	2015
E-045	P-045	185B	Cleaver Brooks	14.287	19426	CBEX200-350-150ST	T5096-1-2	2015
E-046	P-046	185B	Cleaver Brooks	20.410	19439	CBEX200-500-150ST	T5096-2-1	2015
E-047	P-047	185B	Cleaver Brooks	20.410	19445	CBEX200-500-150ST	T5096-2-2	2015
E-048	P-048	105B	Cleaver Brooks	12.247	20128	CBEX200-500-150ST	T5902-1-1	2017
E-049	P-049	105B	Cleaver Brooks	12.247	20129	CBEX200-500-150ST	T-5902-1-2	2017

Equip. ID	Point ID	Building	Manufacturer	Heat Input MMBTUH	National Board #	Model No.	Serial No.	Construction/ Mod. Date
E-050	P-050	129B	Cleaver Brooks	14.287	TBD	TBD	TBD	2017
E-051	P-051	129B	Cleaver Brooks	14.287	TBD	TBD	TBD	2017
E-052	P-052	229B	Cleaver Brooks	14.287	20254	TBD	T6076-1-1	2017
E-053	P-053	229B	Cleaver Brooks	14.287	20256	TBD	T6076-1-2	2017

Limits for EUG 1N Boilers Scenario I – Natural Gas

Equipment ID	NO_X		CO		SO_2		PM/PM_{10}		VOC	
	Lb/hr	TPY	Lb/hr	TPY	Lb/hr	TPY	Lb/hr	TPY	Lb/hr	TPY
E-042	0.50	1.44	0.11	0.31	0.01	0.04	0.14	0.41	0.05	0.13
E-043	0.50	1.44	0.11	0.31	0.01	0.04	0.14	0.41	0.05	0.13
E-044	0.50	1.44	0.11	0.31	0.01	0.04	0.14	0.41	0.05	0.13
E-045	0.50	1.44	0.11	0.31	0.01	0.04	0.14	0.41	0.05	0.13
E-046	0.71	2.06	0.15	0.44	0.02	0.06	0.20	0.59	0.07	0.19
E-047	0.71	2.06	0.15	0.44	0.02	0.06	0.20	0.59	0.07	0.19
E-048	0.43	1.88	0.22	0.97	0.01	0.05	0.02	0.11	0.04	0.19
E-049	0.43	1.88	0.22	0.97	0.01	0.05	0.02	0.11	0.04	0.19
E-050	0.50	2.19	0.11	0.47	0.01	0.06	0.14	0.63	0.05	0.20
E-051	0.50	2.19	0.11	0.47	0.01	0.06	0.14	0.63	0.05	0.20
E-052	0.50	2.19	0.11	0.47	0.01	0.06	0.14	0.63	0.05	0.20
E-053	0.50	2.19	0.11	0.47	0.01	0.06	0.14	0.63	0.05	0.20

Limits for EUG 1N Boilers Scenario II – No. 2 Fuel Oil

Equipment ID	NO_X		CO		SO_2		PM/PM_{10}		VOC	
	Lb/hr	TPY	Lb/hr	TPY	Lb/hr	TPY	Lb/hr	TPY	Lb/hr	TPY
E-042	1.71	4.94	0.11	0.33	1.43	4.11	0.36	1.03	0.03	0.08
E-043	1.71	4.94	0.11	0.33	1.43	4.11	0.36	1.03	0.03	0.08
E-044	1.71	4.94	0.11	0.33	1.43	4.11	0.36	1.03	0.03	0.08
E-045	1.71	4.94	0.11	0.33	1.43	4.11	0.36	1.03	0.03	0.08
E-046	2.45	7.05	0.16	0.47	2.04	5.88	0.51	1.47	0.04	0.12
E-047	2.45	7.05	0.16	0.47	2.04	5.88	0.51	1.47	0.04	0.12
E-048	1.41	6.17	0.10	0.43	1.22	5.36	0.17	0.75	0.02	0.11
E-049	1.41	6.17	0.10	0.43	1.22	5.36	0.17	0.75	0.02	0.11
E-050	1.71	7.51	0.11	0.50	1.43	6.26	0.36	1.56	0.03	0.13
E-051	1.71	7.51	0.11	0.50	1.43	6.26	0.36	1.56	0.03	0.13
E-052	1.71	7.51	0.11	0.50	1.43	6.26	0.36	1.56	0.03	0.13
E-053	1.71	7.51	0.11	0.50	1.43	6.26	0.36	1.56	0.03	0.13

a) The 1N boilers are subject to NSPS Subpart Dc and shall comply with all applicable standards including but not limited to the following.

i. Standards for sulfur dioxide [40 CFR 60.42c]

ii. Recording sulfur content of fuel deliveries instead of CEMS [40 CFR 60.46c]

iii. Reporting and recordkeeping [40 CFR 60.48c]

EUG 2B Permitted Coating Booths

Equipment ID	Emission Point ID	Building	VOC Emission Rate	
			lb/hr	TPY
E-20569, E-20570	P-190PB	190	3.67	16.1
E-01101	P-01101	11/399	1.35	1.4
E-08128	P-08128	454	16.0	69.5

Equipment ID	Emission Point ID	Building	VOC Emission Rate	
			lb/hr	TPY
E-47757	P-47757	48	9.62	42.1
E-49224	P-49224	101	0.60	2.62
E-40093	P-40093	111	9.62	10.0
E-31679	P-31679	134	5.43	23.8
E-14201	P-14201	142	0.60	2.63
E-45619	P-45619	175	4.32	18.9
E-45619	P-45619	175		
E-19801	P-19801	198	7.38	32.3
E-19802	P-19802	198		
E-19803	P-19803	198		
E-44482	P-44482	455	9.60	42.1
E-419F	P-419F	419	0.37	1.64
E-11399	P-11399	567	0.31	1.37

a) Dry mesh filter shall be used in the paint booths to control PM emissions. Alternative pollution control devices may be used provided that the emissions control efficiency is the same (90%) or better. A permit limit of 57.3 TPY of PM_{10} applies to the Bldg. 190 booths.

b) Material usage and calculation records shall be maintained monthly to determine compliance with the EUG 2B VOC emission limit of 264.46 TPY (12-month rolling total). There is no limit on material usage.

c) Emission limits for each booth may be disregarded, as long as the EUG 2B VOC limit of (b) is not exceeded.

EUG 2F Coating Fugitives

There are no emission limits applied to these units under Title V. However, they are limited to the existing equipment as it is.

Equipment ID	Emission Point ID	Building	Description	Const/ Mod Date
E-FUG1	P-FUG1	Various	Various paint and thinner usage	1943

EUG 2G Grandfathered Coating Booths

There are no emission limits applied to these units under Title V. However, they are limited to the existing equipment as it is.

Equipment ID	Emission Point ID	Building	Description	Function	Const/ Mod Date
E-07761	P-07761	126	Paint Booth	Medium Caliber Production	1964
E-05149	P-05149	130	Paint Booth	Medium Caliber Production	1960
E-32484	P-32484	453	Paint Booth	In Storage	1990

EUG 3 Solvent

There are no emission limits applied to these units under Title V. However, they are limited to the existing equipment as it is.

Equipment ID	Emission Point ID	Building	Description	Const/ Mod Date
E-SOL	P-SOL	Various	Solvent Usage	1943

EUG 4 Deactivation Furnace

EU ID#	Point ID#	Description	Installation / Mod Date
E-0452	P-0452	APE 1236M2	1996 / 2001

Pollutant	Emission Limit TPY (12-month rolling)
PM	2.5
NO_X	133
CO	7.1
VOC	2.5
SO_2	2.5

Pollutant	TPY
Dioxin / Furan	6.8×10^{-10} (TEQ)
HCl	3.12
Cl_2	0.066

Pollutant	TPY
Mercury	5.05×10^{-4}
SVM	6.135×10^{-3}
LVM	1.2×10^{-4}

Where SVM means semi-volatile metals (lead & cadmium), LVM means low-volatility metals (arsenic, beryllium and chromium), and HCl/Cl_2 means hydrochloric acid/chlorine gas.

a) The furnace is authorized to operate continuously (24 hours per day, every day). [OAC 252:100-8-6(a)]

b) The furnace is an affected source under the NESHAP for Hazardous Waste Incinerators, 40 CFR 63, Subpart EEE, and shall comply with all requirements, including but not limited to the following. [40 CFR 63.1200 et seq]
   i. Emissions standards and operating limits [§ 63.1203 and 1219]
   ii. Monitoring and compliance provisions [§ 63.1206 to 1209]
   iii. Notification, reporting, and recordkeeping [§ 63.1210 to 1211]
   iv. Other requirements [§ 63.1212 to 1215]

c) The following records shall be maintained on-site for a minimum of five years after the date of recording and made available to regulatory personnel upon request. [OAC 252:8-6(a)(3)(b)]
   i. Quantity of munitions fed to the incinerator by weight and type (daily)
   ii. Quantity of supplemental fuels used monthly in the incinerator (by usage or purchase records)
   iii. Records of each performance test that establishes, revises, or refines Operating Parameter Limits (OPLs)
   iv. Records of any exceedance of OPLs (date, duration, cause)
   v. Calculations of Criteria Pollutants every month and a 12-month rolling total of each.
   vi. Records required by 40 CFR 63, Subpart EEE.

EUG 5G Grandfathered Open Burn/Open Detonation/Static Firing

There are no emission limits applied to these units under Title V. However, they are limited to the existing equipment as it is.

Emission Point ID	Construction/ Modification Date 1942
P-990, P-991	Flash burning trench/ wood/ diesel
P-997	Open burning (OB) range
P-998, P-999	OD of munitions Area 1 and Area 2

a) Pursuant to OAC 252:100-25, the permittee shall conduct OB and OD operations only during daylight hours when climatic conditions meet the criteria set by Army Regulations.
b) Although there are no Air Quality limits, OB is limited by a RCRA Permit to a total net explosive weight (NEW) throughput of 6,400,000 lb/yr.
c) Although there are no Air Quality limits, OD is limited by a RCRA Permit to a total NEW throughput of 2,280,000 lb/yr.
d) Records to support secondary emissions from combustion of wood, solvents, and other combustible materials shall be maintained.

EUG 5P Permitted Open Burn/Open Detonation/Static Firing

a) Static firing emissions are limited to 41.5 TPY of CO, 24.4 TPY of PM_{10}, 19.4 TPY of $PM_{2.5}$, 34.8 TPY of hydrochloric acid, 32 TPY of SO_2, and 6.54 TPY of Pb. Emissions shall be calculated and recorded monthly and as a 12-month rolling total.
b) Static firing emissions are limited to 9.54 lb/hr of Pb, 4-hour average, calculated daily.
c) Pursuant to OAC 252:100-25, the permittee shall conduct open burning/detonation operations only during daylight hours when climatic conditions meet the criteria set by Army Regulations.
d) Static firing is limited by a RCRA Permit to a total net explosive weight (NEW) throughput of 1,280,000 lb/yr.
e) Any combination of missiles/rockets may be fired, including types not listed in this table, provided that emission limits are not exceeded.
f) The number and type of missiles/motors fired daily shall be recorded.
g) Emissions shall be calculated based off manufacturer's data and emission factors stated in the memo of this permit.
h) Static firing of the MK12 missiles shall be conducted using good operating practices.

EUG 6 Explosive Mixing

EUG 6G Grandfathered Explosive Mixing

There are no emission limits applied to these units under Title V. However, they are limited to the existing equipment as it is.

Equipment ID	Emission Point ID	Building	Description	Function	Const/ Mod Date
E-34252	P-33205	172	B-Line Exp Mix	TNT mixing (inactive)	1966
E-34253					
E-34254					
E-34255					
E-34256					
E-34257					
E-34332	P-32650	177	B-Line Exp Mix	TNT mixing	1966
E-34333					1943
E-57692					1971
E-57693					1971
E-34336					1966
E-57691					1971

EUG 6P Permitted Explosive Mixing

Equipment ID	Emission Point ID	Building	Description	Function	Const/ Mod Date
E-34200	P-39786	104	40 MM Production Area Exp. Mix	TNT mixing	1978
E-34300	P-19584	194B	A-Line Exp Mix	PBX mixing	1989
E-34298					
E-34299	P-19563				
E-34297					
E-14200	P-14202	142	Medium Caliber Production Exp Mix	PBX mixing	2000
E-14201					
E-14202					
E-34197	P-19200	192	A-Line Exp Mix	TNT mixing	1999
E-49114	P-49497	177B	Exp Mix	PBX mixing	2009
E-49116	P-49497	177B	Exp Mix	PBX mixing	2009
E-49492	P-49485	114C	Wet Scrubber	PBX mixing	2012

Emission Point ID	Control ID	Building No.	Control Description	Fan Rating (cfm)	PM Loading (gr/cf)	PM Control Efficiency (%)	PM_{10} Emissions (lb/hr)	PM_{10} Emissions (TPY)
P-39786	C-39786	104	Wet Scrubber	2,000	0.2	95	0.17	0.75
P-19584	C-19584	194B	Venturi Scrubber	2,200	0.2	95	0.19	0.83
P-19563	C-19563	194B	Venturi Scrubber	2,200	0.2	95	0.19	0.83
P-19200	C-19590	192	Venturi Scrubber	4,800	0.2	95	0.41	1.80
P-49497	C-49497	177B	Wet Scrubber	3,700	0.2	95	0.32	1.40
P-49497	C-49497	177B	Wet Scrubber	3,700	0.2	95	0.32	1.40
P-49485	C-49485	314B	Wet Scrubber	2,000	0.2	95	0.17	0.75

a) All stack discharges from the listed explosive mixing operations shall be vented to a wet scrubber, venturi scrubber, or equivalent air pollution control device (95% or greater PM emission control efficiency).

b) Explosive Mixing activities may be moved among these and other emission points as needed. The moved activities remain subject to a).

EUG 7 Grit Blasting

EUG 7G Grandfathered Grit Blasting

There are no emission limits applied to these units under Title V. However, they are limited to the existing equipment as it is.

Equipment ID	Emission Point ID	Bldg.	Description	Function	Const/ Mod Date
E-39451	P-39451	134	Grit Blasting	Renovate ammo containers	1947
E-39452	P-39452	134	Grit Blasting	Renovate ammo containers	1943
E-33494	P-A95024	126	Medium Caliber Production Grit	Grit blast ammo for renovation	1943
E-34302	P-34302	423	Weld Shop Grit	Grit blast various metal parts prior to welding	1944
E-03550	P-03550	429	Old Weld Shop Grit	Grit blast various metal parts prior to welding	1948

EUG 7P Permitted Grit Blasting Emissions

Emission Point ID	Control ID	Building No.	Control Description	Fan Rating (cfm)	PM Loading (gr/cf)	PM Control Efficiency	PM_{10} Emissions (lb/hr)	PM_{10} Emissions (TPY)
P-455GB	C-455GB	455	Cartridge Filter	2,770	3	99	0.71	3.12
P-17501	C-17501	175	Cartridge Filter	6,000	3	99	1.54	6.76
P-19001	C-19001	190	Cartridge Filter	2,200	3	99	0.57	2.48
P-198GB	C-198GB	198	Mesh Filter	8,300	3	99	6.40	28.03
P-44730	C-44730	48	Cartridge Filter	3,000	3	99	0.77	3.38
P-0419GB	C-0419GB	419	Cartridge Filter	840	3	99	0.22	0.95
P-34309	C-48509	134	Cartridge Filter	11,500	3	99	2.96	12.95
P-48660	C-48509	134	Cartridge Filter	11,500	3	99	2.96	12.95
P-4T0901	C-4T0901	567	Cartridge Filter	10,000	3	99	0.82	3.60

a) All stack discharges from the listed grit blasting operations shall be vented to a baghouse, cartridge filter, or equivalent air pollution control device (99% or greater PM emission control efficiency).

EUG 8 Thermal Arc Spraying (TAS)

Emission Point ID	Building No.	PM_{10} Emission Rate	
		lb/hr	TPY
P-455TAS	455	0.47	2.06
P-175TAS	175	1.70	7.46
P-190TAS	190	1.70	7.46
P-48TAS	48	1.88	8.22

a) All stack discharges from the listed thermal arc spraying operations shall be vented to a baghouse, cartridge filter, or equivalent air pollution control device (99% or greater PM emission control efficiency).

b) Thermal Arc Spraying activities and emissions may be moved among these and other emission points as needed, provided that total emissions authorized for EUG 8 are not exceeded. Moved activities remain subject to Specific Condition a).

EUG 9 Explosive Sifting

There are no emission limits applied to these units under Title V. However, they are limited to the existing equipment as it is.

Equipment ID	Emission Point ID	Building	Description	Const/ Mod Date
E-31237	P-31888	110	Major Caliber Production	1942
E-31238	P-31889	110	Major Caliber Production	1942
E-01060	P-01060	174	B-Line Exp Sift	1942
E-179SIF	P-179SIF	179	B-Line Exp Sift	1942
E-01055	P-01055	181	B-Line Exp Sift	1944
E-09484	P-09484	182	B-Line Exp Sift	1944
E-194AS	P-194AS	194A	A-Line Exp Sift	1989
E-49455	P-49455	177B	PBX Sifting	2013

EUG 10 Explosive Dust Collection Emissions
EUG 10G Grandfathered Explosive Dust Collection
There are no emission limits applied to these units under Title V. However, they are limited to the existing equipment as it is.

Equipment ID	Emission Point ID	Building	Description	Const/ Mod Date
E-0140B	P-0140B	140	40 MM Production	1943
E-05172	P-05172	104	Explosive Dust Collection	1943
E-31652	P-31652	126	Explosive Dust Collection	1943
E-08915	P-31650	109	Explosive Dust Collection	1943

EUG 10P Permitted Explosive Dust Collection Emissions

Emission Point ID	Control ID	Building No.	PM_{10} Emission Rate	
			lb/hr	TPY
P-AL01	C-AL01	194B	3.02	13.2

a) All stack discharges from the Explosive Dust Collection operations shall be vented to a baghouse, cartridge filter, or equivalent air pollution control device (99% or greater PM emission control efficiency).
b) Explosive Dust Collection activities and emissions may be moved among these and other emission points as needed. Moved activities remain subject to Specific Condition a).

EUG 11 Miscellaneous Particulate Collection
EUG 11G Grandfathered Miscellaneous Particulate Collection
There are no emission limits applied to these units under Title V. However, they are limited to the existing equipment as it is.

Equipment ID	Emission Point ID	Building	Description	Const/ Mod Date
E-0009C	P-0009C	9	Wood Processing	1943

EUG 11P Permitted Miscellaneous Particulate Collection

Emission Point ID	Building No.	Description	PM_{10} Emission Rate	
			lb/hr	TPY
P-31973	710	Wood Processing	1.50	6.58
P-40824	388	Wood Processing	1.50	6.58
P-49233	101	Cement Mixing	0.57	2.08
P-43744	454	Cement Mixing	0.57	2.48
P-43745	455	Cement Mixing	0.57	2.48
P-637/760/L	637/760	Wood Processing	6.35	27.82
P-637/760S	637/760	Wood Processing	0.64	2.82

a) All stack discharges from the listed operations shall be vented to a baghouse, cartridge filter, or equivalent air pollution control device (99% or greater PM emission control efficiency).
b) Wood processing and cement mixing operations and emissions may be moved among these and other emission points as needed as long as the EUG 11P emission limit is not exceeded. Moved activities remain subject to Specific Condition a).

EUG 12 Explosive Meltout

Emission Point ID	Building No.	Description	Combined PM Emissions [1]	
			lb/hr	TPY
P-44217	171	Wet Scrubber	1.14	5.0
P-44216	186	Wet Scrubber		
P-44239	186	Wet Scrubber		

[1] Combined emission rates for Buildings 171 and 186.

a) Particulate emissions from the explosive material collection systems shall be ducted through a functioning wet scrubber or equivalent air pollution control device (99% efficiency) prior to release to the atmosphere.

b) Explosive meltout operations and emissions may be moved among these and other emission points as needed as long as the EUG 12 emission limit is not exceeded. Moved activities remain subject to Specific Condition a).

EUG 13 Fuel Storage and Dispensing

EUG 13G Grandfathered Fuel Storage and Dispensing

There are no emission limits applied to these units under Title V. However, they are limited to the existing equipment as it is.

Equipment ID	Tank Location	Description	Construction Date
E-733F	48	5,000-gallon diesel storage	1943
E-732	78	1,100-gallon diesel storage	1943
E-735	78	8,000-gallon heavy oil storage	1943

EUG 13P Permitted Fuel Storage and Dispensing

Although these tanks have previously been the subjects of permitting, there are no emission limits applied to these units under Title V. However, they are limited to the existing equipment as it is. Three gasoline tanks have annual throughput limits, as noted below. All four gasoline tanks shall have submerged fill.

Emission Point ID	Tank Location	Description	Capacity (gallons)	Annual throughput (gallons)
P-0476P	476	Diesel	12,000	N/A
P-630F	Fuel Farm	Gasoline	10,000	444,562
P-631F	Fuel Farm	Gasoline	10,000	341,918
P-632F	Fuel Farm	Gasoline	10,000	480,827
P-633F	Fuel Farm	Diesel	10,000	N/A
P-672F	Fuel Farm	Diesel	508,000	N/A
P-746F	Deactivated	Diesel	850	N/A
P-790P	Deactivated	Diesel	4,000	N/A
P-756F	569	Diesel	6,000	N/A
P-742F	105B	Diesel	5,200	N/A
P-741F	110B	Diesel	7,900	N/A
P-738P	129B	Diesel	10,000	N/A
P-744F	136B	Diesel	5,200	N/A
P-737F	165B	Diesel	10,000	N/A
P-739F	185B	Diesel	20,000	N/A
P-755F	1AT	Diesel	2,100	N/A
P-736F	229B	Diesel	10,000	N/A

Emission Point ID	Tank Location	Description	Capacity (gallons)	Annual throughput (gallons)
P-743F	141B	Diesel	3,800	N/A
P-775	185B	Diesel	200	N/A
P-800	165B	Diesel	575	N/A
P-801F	Fuel Farm	Gasoline	12,000	N/A

EUG 14 Engines Subject to NESHAP Subpart ZZZZ

a) All engines are affected sources under ZZZZ, and the permittee shall comply with all applicable requirements of 40 CFR 63 (NESHAP) Subpart ZZZZ, Reciprocating Internal Combustion Engines (RICE), including but not limited to the following.

i. §63.6580, 85, 90 Applicability criteria.
ii. §63.6595 Compliance date.
iii. §63.6601, 02, 03 Emission and operating limitations.
iv. §63.6604 Fuel requirements.
v. §63.6605 General requirements.
vi. §63.6610, 11, 12, 15, 20 Testing requirements.
vii. §63.6625 Monitoring requirements.
viii. §63.6630, 35, 40 Compliance demonstrations.
ix. §63.6645, 50, 55, 60 Notification, reporting, and recordkeeping requirements.
x. §63.6665 General Provisions.
xi. §63.6670 Who implements and enforces this subpart?
xii. §63.6675 Definitions.
xiii. Appendices Tables 1 – 8.

b) Each generator shall be equipped with a non-resettable hour meter and records kept of dates and times of operation.

14A New Engines Under ZZZZ, Subject to NSPS Subpart IIII

Emission	NO_X		CO		PM		SO_2		VOC	
Point ID	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
P-0105G	2.50	0.63	0.54	0.13	0.18	0.04	0.17	0.04	0.20	0.05
P-0110G	6.24	1.56	1.34	0.34	0.44	0.11	0.41	0.10	0.50	0.12
P-0136G	2.50	0.63	0.54	0.13	0.18	0.04	0.17	0.04	0.20	0.05
P-036G	10.4	2.60	2.24	0.56	0.74	0.18	0.69	0.17	0.83	0.21
P-390G	0.71	0.18	0.88	0.22	0.05	0.01	0.20	0.05	0.24	0.06
P-036F	0.92	0.23	1.15	0.29	0.19	0.05	0.16	0.04	0.20	0.05
P-RTG	0.41	0.10	0.44	0.11	0.04	0.01	0.11	0.03	0.13	0.03

c) The permittee shall comply with all applicable requirements of 40 CFR 60 (NSPS) Subpart IIII, Stationary Compression Ignition Internal Combustion Engines (CI ICE) concerning generator engines in EUG 14A, including but not limited to the following.

i. §60.4205 What emission standards must I meet for emergency engines if I am an owner or operator of a stationary CI internal combustion engine?
ii. §60.4206 How long must I meet the emission standards if I am an owner or operator of a stationary CI internal combustion engine?

iii. §60.4207 What fuel requirements must I meet if I am an owner or operator of a stationary CI internal combustion engine subject to this subpart?
iv. §60.4209 What are the monitoring requirements if I am an owner or operator of a stationary CI internal combustion engine?
v. §60.4211 What are my compliance requirements if I am an owner or operator of a stationary CI internal combustion engine?
vi. §60.4214 What are my notification, reporting, and recordkeeping requirements if I am an owner or operator of a stationary CI internal combustion engine?

14B New Engines Under ZZZZ, Not Subject to NSPS

Emission Point ID	NO_x		CO		PM		SO_2		VOC	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
P-01GEN	35.43	38.97[1,3]	6.44	7.09[1,3]	0.64	2.82[1,3]	0.97	4.23[1,3]	6.44	7.09[1,3]
P-02GEN	35.43		6.44		0.64		0.97		6.44	
P-03GEN	26.88	6.72[2,3]	6.16	1.54[2,3]	0.78	0.20[2,3]	0.50	0.13[2,3]	0.72	0.18[2,3]

1 These subtotals are the combined emissions for P-01 and P-02 generators operating for a combined total of 2,200 hrs/yr.
2 These TPY numbers are the potential emissions for P-03GEN operating 500 hrs/yr.
3 The TPY numbers for each pollutant listed above are the annual emission limits when applicable unless a modification for more hours of operation is approved.

d) Each engine is subject to NESHAP Subpart ZZZZ and shall demonstrate compliance with ZZZZ through compliance with NSPS Subpart IIII.

14C Engines Not 14A or 14B, with HP > 500

The only engine in this EUG is a 1,039-hp Magnaone constructed in 1995. It serves a 775-kW generator at Building 194-B.

14D Engines Not 14A or 14B, with HP ≤ 500

Bldg.	Description	HP	Date
1	Generac	235	1993
2	Generac	268	1993
3	Cummins	134	2004
5	Generac	201	1995
16	Generac	268	2000
31	Onan	35	1998
35	Onan	35	1998
40/41	Generac	268	1989
42	Onan	15	1999
104	Magnaone	489	1981
129-B	Armstrong	148	2003
141-B	Cummins	80	2004
165-B	Cummins	80	2004

Bldg.	Description	HP	Date
185-B	Cummins	268	2004
190	Kohler	107	N/A
210	Cummins	80	2004
229-B	Cummins	134	2004
231	Cummins	47	2004
234	Cummins	80	2004
402	Generac	235	1993
408	Kohler	349	N/A
424	Onan	60	1974
481	Onan	34	1998
567	Marathon	67	1991
725/628	Cummins	47	2004
Post 14	Generac	402	2000

EUG 16 Insignificant Activities

Activities having the potential to emit no more than 5 TPY (actual) of any criteria pollutant. Demonstration methods are listed as follow.

a) Laboratory, emission points P-0020F in Bldg 20 and P-34425, 34426, and 34427 in Bldg 152. Permittee shall keep an inventory of volatile chemical purchases through Air Programs Information Mgt System Software or a similar system.
b) DAC OD, Emission point P-993. Records of munitions exploded (OD) shall be maintained (annual)
c) Wastewater Treatment Flare, emission point E-0042 (calendar year).
d) Tar Coating, asphalt kettle emission points E-34261 and 34262 in Bldg 175, E-20624 in Bldg 190, and 49224 in Bldg 101 (calendar year).
e) Paint Booths, emission points E-10301 and 10302 in Bldg 103 and E-10401 in Bldg 104 (calendar year).
f) Hoffman Vacuum Cleaning Systems, (calendar year).

EUG 17 Plasma Arc Cutters

Subgroup	EU	NO_X		PM_{10}		$PM_{2.5}$	
		lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
17a	Booth 1	2.69	25.20	0.22	2.04	0.22	2.04
	Booth 2	2.69		0.22		0.22	
	Booth 3	2.69		0.22		0.22	
	Booth 4	2.69		0.22		0.22	
	Booth 5	2.69		0.22		0.22	
	Booth 6	2.69		0.22		0.22	
17b	Booth 7	2.69	39.28	0.22	3.24	0.22	3.24
	Booth 8	2.69		0.22		0.22	
	Booth 9	2.69		0.22		0.22	
	Booth 10	2.69		0.22		0.22	

These limits are predicated on the use of the cutting equipment in booths 1 through 6 not to exceed 3,120 hours per year per unit, and of cutting equipment in booths 7 through 10 not to exceed 7,300 hours per year per unit. Hours may be shared among units in each subgroup. Total hours for Subgroup 17a shall not exceed 18,720 per year. Total hours for Subgroup 17b shall not exceed 29,200 per year.

2. The facility is authorized to operate continuously (24 hours per day, every day of the year). [OAC 252:100-8-6(a)]

3. A model number or another acceptable form of permanent (non-removable) identification shall be on each engine, boiler, and generator.

4. Major items of control equipment as listed below shall have a meter, gauge, or other method that measures the performance of the associated control equipment according to manufacturers' recommendations. A copy of the manufacturer's recommendations or an equivalent study supporting engineering judgment shall be maintained at the facility and available for inspection. Records shall be maintained (for each operating day) that confirm that each listed control item is

operating properly. Control equipment and performance measuring devices of the same or better performance may be substituted for the listed equipment.

Build.	Operation	Control Description	Blower Rating	Blower Size	Blower RPM	Model	Operational Indicator Device
399	Painting	Fiber Batts	5000	4 1/2	967	Buffalo Limit Load, Class1, 5hp, NYB GI 294LS equiv.	Manometer
48	Painting (Main)	H2O/Fiber Batts	9492	18	3591	NYB Tubular ACF, SBS, 15hp	Pump Pressure Gage
101	Cement Mix	Baghouse	10,000	10	1284	AGET Manufacturing FH58S-3D-SP, NY Blower 28.7 hp	Manometer
111	Painting	Fiber Batts	7480	34	1445	JBI Propellor 13241/8049, 3hp	Manometer
126	Painting	Fiber Batts	4875	32	1740	Duct Fan, 3 hp	Manometer
130	Painting	Fiber Batts	7100	32	1755	Duct Fan, 3 hp	Manometer
142	Painting	Fiber Batts	10,200	18	4379	Am Fan Co. BCS-182, 25hp. 30JAN06	Manometer
171	Explosive Meltout	Wet Scrubber	19,706	30	1320	NYB 30PLR Class IV Blower, 100hp	Pump Pressure Gage/ Water Sight Glass
175	Painting	H2O/Fiber Batt	30,000	42	1683	NYB Tublr ACF, 50 hp, SBS	Magnehelic
175	Grit Blasting	Cartridge House	6000	15	1755	Donaldson Torit DFT3-12,15 hp	Magnehelic
175	ThermArc Spray	Dual Baghouse	6627	18	3698	NYB 18PLR, 25hp, 2 x AGET FH58S-6	Magnehelic
186A	Explosive Meltout	Wet Scrubber	15,530	30	1320	NYB 30PLR Class IV Fan, 100hp	Pump Pressure Gage/ Water Sight Glass/ Automatic Water Dump System
186	Explosive Meltout	Wet Scrubber	3,300	15	2678	Cantech Enviro Systems 6CV-4, 15 hp	Magnehelic
190	Painting	Fiber Batts	19,577	50	1785	NYB Series 20, 504DH, 125-hp	Magnehelic
190	Grit Blasting	Cartridge House	2,200	15	1755	Donaldson Torit DFT3-12, 15-hp	Magnehelic
190	ThermArc Spray	Dual Baghouse	6627	18	3698	Am Fan Co. BCS-182, 25hp, 2 x AGET FH58S-6	Magnehelic
194B	Explosive Mixing	Venturi scrubber	2200	22	3510	NYB PB2208A equivalent, 20hp, Ducon VVO, 11/24	Pump Pressure Gage
194B	Explosive Mixing	Venturi scrubber	2200	22	3515	NYB PB2208A equivalent, 15hp, Ducon VVO, 11/305	Pump Pressure Gage
198	Grit Blasting	Cartridge House	8300	22	2224	BCP Collector, Sheldon Blower D6122, 15hp.	Magnehelic
198	Painting	Fiber Batts	8000	32	1519	Duct Fan, 5hp	Magnehelic
198	Painting	Fiber Batts	8000	32	1519	Duct Fan, 5hp	Magnehelic
198	Painting	Fiber Batts	8000	32	1519	Duct Fan, 5hp	Magnehelic
567	Painting	Fiber Batts	28,500	42	1755	Downdraft Booth, Model DD-26-SB-S, 7.5hp	Manometer
187	Explosive Mixing	Venturi Scrubber	23,500[a]	32	1800	Model No. 8 Sly Venturi Scrubber	Magnehelic

[a] - The scrubber is designed to pull all air from the building through the scrubber. However, only 1200 cfm will be pulled over each mixing kettle.

5. The permittee shall keep the following records on site. These records shall be made available for inspection by regulatory personnel upon request. Required records shall be retained for a period of at least five years following dates of recordings.

a) Hours of operation for each generator in EUGs 14A – 14D (calendar year).
b) Hours of operation for each boiler in EUG 1N (calendar year).
c) Records enumerated under EUG 4.
d) Amount of NEW throughput processed at OB and OD (each operating day and calendar year total).
e) Quantity by type of missiles and rocket motors burned (each operating day and 12-month rolling total).
f) Number of bombs/projectiles processed (melt-out) by type (each operating day and cumulative annual).
g) Emission calculations required by EUG 5P (a).
h) Inspection and maintenance of control equipment, baghouse, wet scrubber, etc., as directed by the manufacturer (weekly when operating unless otherwise directed)
i) Usage of wire in the thermal arc sprayer units (monthly and cumulative annual).
j) Usage of paints and solvents for the surface coating operations (monthly and cumulative annual).
k) Material usage records and calculations to determine compliance with the VOC emission limitations (monthly and 12-month rolling total) for EUG 2B.
l) Amounts of solvent burned (monthly and cumulative annual).
m) Gasoline throughput for Tanks 630, 631, and 632 (monthly and cumulative annual).
n) Records required by NSPS Subpart Dc and Subpart IIII and by NESHAP Subpart EEE, Subpart ZZZZ and Subpart DDDDD.
o) Records of emissions as required by OAC 252:100-8-36.2(c)(3).

6. The following records shall be maintained on-site to verify Insignificant Activities. No recordkeeping is required for those operations that qualify as Trivial Activities.

[OAC 252:100-8-6 (a)(3)(B)]

a) The pounds of welding rod and solder (annual total).
b) The number of gallons of diesel throughput (annual total).
c) The gallons of all cleaning solvents by each specific type with current MSDS data (annual total).
d) Inventory of volatile chemical purchases for Laboratory.
e) Records of munitions exploded (OD) (annual total).
f) Natural gas fuel usage for waste water treatment flare (calendar year).
g) Asphalt kettle emissions (calendar year).
h) Paint booth emissions (calendar year).
i) Hoffman Vacuum Cleaning Systems emissions (calendar year).
j) Activities that have the potential to emit no more than 5 TPY (actual) of any criteria pollutant.

7. The Permit Shield (Standard Conditions, Section VI) is extended to the following requirements that have been determined to be inapplicable to this facility.

[OAC 252:100-8-6(d)(2)]

a) OAC 252:100-7 Minor Sources
b) OAC 252:100-11 Alternative Emissions Reduction
c) OAC 252:100-15 Mobile Sources
d) OAC 252:100-23 Cotton Gins
e) OAC 252:100-24 Grain Elevators

f) OAC 252:100-35 Carbon Monoxide
g) OAC 252:100-47 Landfills
h) Federal 40 CFR 61 NESHAP
i) Federal 40 CFR 68 RMP

8. The following emission points are subject to Compliance Assurance Monitoring.

EUG	Emission Point	Building	Control Device
7	P-48509	134	Baghouse
	P-455GB	455	Cartridge filter
	P-17501	175	Cartridge filter
	P-19001	190	Cartridge filter
	P-A95024	126	Baghouse
	P-198GB	198	Mesh filter
	P-4T0901	567	Cartridge filter
	P-44730	48	Cartridge filter
8	P-455TAS	455	Cartridge filter
	P-175TAS	175	Baghouse
	P-190TAS	190	Baghouse
	P-48GB	48	Baghouse
9	P-31188	110	Baghouse
	P-31189	110	Baghouse
	P-01055	181	Baghouse
	P-09484	182	Baghouse
	P-49455	177B	Baghouse
10	P-0140B	140	Baghouse
	P-31650	109	Baghouse
	P-AL01	194B	Baghouse
11	P-31973	710	Baghouse
	P-40824	710	Baghouse
	P-49233	101	Baghouse
	P-31600	454	Baghouse
	P-19259	455	Baghouse
	P-637/760L	637/760	Baghouse
	P-637/760S	637/760	Baghouse

The above identified filter devices shall comply with all applicable requirements and shall perform monitoring as approved following.

Indicator	Baghouse pressure differential
Measurement Approach	Differential pressure transducer or manometer
Indicator Range	An excursion is defined as a daily pressure differential below 50% of the operating range. Excursions trigger an inspection, corrective actions, and a reporting requirement.
Data Representativeness Performance Criterion	The differential pressure transducer monitors the static pressures upstream and downstream of the baghouse.
QA/QC Practices and Criterion	Annual comparison to U-tube manometer. Acceptability criterion is 0.5 inches WC.
Monitoring Frequency	Pressure differential is monitored at least once every day when operated.
Data Collection Procedure	Data are recorded electronically or in manual log sheets.
Averaging Period	None

9. No later than 30 days after each anniversary date of the issuance of the original TV permit, December 12, 2007, the permittee shall submit to Air Quality Division of DEQ, with a copy to the US EPA, Region 6, a certification of compliance with the terms and conditions of this permit.

OAC 252:100-8-6(C)(5)(a)&(d)

10. The permittee shall apply for a modification to its operating permit within 180 days of commencement of operations following the proposed project.

MAJOR SOURCE AIR QUALITY PERMIT
STANDARD CONDITIONS
(June 21, 2016)

SECTION I. DUTY TO COMPLY

A. This is a permit to operate / construct this specific facility in accordance with the federal Clean Air Act (42 U.S.C. 7401, et al.) and under the authority of the Oklahoma Clean Air Act and the rules promulgated there under. [Oklahoma Clean Air Act, 27A O.S. § 2-5-112]

B. The issuing Authority for the permit is the Air Quality Division (AQD) of the Oklahoma Department of Environmental Quality (DEQ). The permit does not relieve the holder of the obligation to comply with other applicable federal, state, or local statutes, regulations, rules, or ordinances. [Oklahoma Clean Air Act, 27A O.S. § 2-5-112]

C. The permittee shall comply with all conditions of this permit. Any permit noncompliance shall constitute a violation of the Oklahoma Clean Air Act and shall be grounds for enforcement action, permit termination, revocation and reissuance, or modification, or for denial of a permit renewal application. All terms and conditions are enforceable by the DEQ, by the Environmental Protection Agency (EPA), and by citizens under section 304 of the Federal Clean Air Act (excluding state-only requirements). This permit is valid for operations only at the specific location listed.
[40 C.F.R. §70.6(b), OAC 252:100-8-1.3 and OAC 252:100-8-6(a)(7)(A) and (b)(1)]

D. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of the permit. However, nothing in this paragraph shall be construed as precluding consideration of a need to halt or reduce activity as a mitigating factor in assessing penalties for noncompliance if the health, safety, or environmental impacts of halting or reducing operations would be more serious than the impacts of continuing operations. [OAC 252:100-8-6(a)(7)(B)]

SECTION II. REPORTING OF DEVIATIONS FROM PERMIT TERMS

A. Any exceedance resulting from an emergency and/or posing an imminent and substantial danger to public health, safety, or the environment shall be reported in accordance with Section XIV (Emergencies). [OAC 252:100-8-6(a)(3)(C)(iii)(I) & (II)]

B. Deviations that result in emissions exceeding those allowed in this permit shall be reported consistent with the requirements of OAC 252:100-9, Excess Emission Reporting Requirements.
[OAC 252:100-8-6(a)(3)(C)(iv)]

C. Every written report submitted under this section shall be certified as required by Section III (Monitoring, Testing, Recordkeeping & Reporting), Paragraph F.
[OAC 252:100-8-6(a)(3)(C)(iv)]

SECTION III. MONITORING, TESTING, RECORDKEEPING & REPORTING

A. The permittee shall keep records as specified in this permit. These records, including monitoring data and necessary support information, shall be retained on-site or at a nearby field office for a period of at least five years from the date of the monitoring sample, measurement, report, or application, and shall be made available for inspection by regulatory personnel upon request. Support information includes all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by this permit. Where appropriate, the permit may specify that records may be maintained in computerized form.
[OAC 252:100-8-6 (a)(3)(B)(ii), OAC 252:100-8-6(c)(1), and OAC 252:100-8-6(c)(2)(B)]

B. Records of required monitoring shall include:
(1) the date, place and time of sampling or measurement;
(2) the date or dates analyses were performed;
(3) the company or entity which performed the analyses;
(4) the analytical techniques or methods used;
(5) the results of such analyses; and
(6) the operating conditions existing at the time of sampling or measurement.
[OAC 252:100-8-6(a)(3)(B)(i)]

C. No later than 30 days after each six (6) month period, after the date of the issuance of the original Part 70 operating permit or alternative date as specifically identified in a subsequent Part 70 operating permit, the permittee shall submit to AQD a report of the results of any required monitoring. All instances of deviations from permit requirements since the previous report shall be clearly identified in the report. Submission of these periodic reports will satisfy any reporting requirement of Paragraph E below that is duplicative of the periodic reports, if so noted on the submitted report. [OAC 252:100-8-6(a)(3)(C)(i) and (ii)]

D. If any testing shows emissions in excess of limitations specified in this permit, the owner or operator shall comply with the provisions of Section II (Reporting Of Deviations From Permit Terms) of these standard conditions. [OAC 252:100-8-6(a)(3)(C)(iii)]

E. In addition to any monitoring, recordkeeping or reporting requirement specified in this permit, monitoring and reporting may be required under the provisions of OAC 252:100-43, Testing, Monitoring, and Recordkeeping, or as required by any provision of the Federal Clean Air Act or Oklahoma Clean Air Act. [OAC 252:100-43]

F. Any Annual Certification of Compliance, Semi Annual Monitoring and Deviation Report, Excess Emission Report, and Annual Emission Inventory submitted in accordance with this permit shall be certified by a responsible official. This certification shall be signed by a responsible official, and shall contain the following language: "I certify, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete."
[OAC 252:100-8-5(f), OAC 252:100-8-6(a)(3)(C)(iv), OAC 252:100-8-6(c)(1), OAC 252:100-9-7(e), and OAC 252:100-5-2.1(f)]

G. Any owner or operator subject to the provisions of New Source Performance Standards ("NSPS") under 40 CFR Part 60 or National Emission Standards for Hazardous Air Pollutants ("NESHAPs") under 40 CFR Parts 61 and 63 shall maintain a file of all measurements and other information required by the applicable general provisions and subpart(s). These records shall be maintained in a permanent file suitable for inspection, shall be retained for a period of at least five years as required by Paragraph A of this Section, and shall include records of the occurrence and duration of any start-up, shutdown, or malfunction in the operation of an affected facility, any malfunction of the air pollution control equipment; and any periods during which a continuous monitoring system or monitoring device is inoperative.

[40 C.F.R. §§60.7 and 63.10, 40 CFR Parts 61, Subpart A, and OAC 252:100, Appendix Q]

H. The permittee of a facility that is operating subject to a schedule of compliance shall submit to the DEQ a progress report at least semi-annually. The progress reports shall contain dates for achieving the activities, milestones or compliance required in the schedule of compliance and the dates when such activities, milestones or compliance was achieved. The progress reports shall also contain an explanation of why any dates in the schedule of compliance were not or will not be met, and any preventive or corrective measures adopted. [OAC 252:100-8-6(c)(4)]

I. All testing must be conducted under the direction of qualified personnel by methods approved by the Division Director. All tests shall be made and the results calculated in accordance with standard test procedures. The use of alternative test procedures must be approved by EPA. When a portable analyzer is used to measure emissions it shall be setup, calibrated, and operated in accordance with the manufacturer's instructions and in accordance with a protocol meeting the requirements of the "AQD Portable Analyzer Guidance" document or an equivalent method approved by Air Quality.

[OAC 252:100-8-6(a)(3)(A)(iv), and OAC 252:100-43]

J. The reporting of total particulate matter emissions as required in Part 7 of OAC 252:100-8 (Permits for Part 70 Sources), OAC 252:100-19 (Control of Emission of Particulate Matter), and OAC 252:100-5 (Emission Inventory), shall be conducted in accordance with applicable testing or calculation procedures, modified to include back-half condensables, for the concentration of particulate matter less than 10 microns in diameter (PM_{10}). NSPS may allow reporting of only particulate matter emissions caught in the filter (obtained using Reference Method 5).

K. The permittee shall submit to the AQD a copy of all reports submitted to the EPA as required by 40 C.F.R. Part 60, 61, and 63, for all equipment constructed or operated under this permit subject to such standards. [OAC 252:100-8-6(c)(1) and OAC 252:100, Appendix Q]

SECTION IV. COMPLIANCE CERTIFICATIONS

A. No later than 30 days after each anniversary date of the issuance of the original Part 70 operating permit or alternative date as specifically identified in a subsequent Part 70 operating permit, the permittee shall submit to the AQD, with a copy to the US EPA, Region 6, a certification of compliance with the terms and conditions of this permit and of any other applicable requirements which have become effective since the issuance of this permit.

[OAC 252:100-8-6(c)(5)(A), and (D)]

B. The compliance certification shall describe the operating permit term or condition that is the basis of the certification; the current compliance status; whether compliance was continuous or intermittent; the methods used for determining compliance, currently and over the reporting period. The compliance certification shall also include such other facts as the permitting authority may require to determine the compliance status of the source.
[OAC 252:100-8-6(c)(5)(C)(i)-(v)]

C. The compliance certification shall contain a certification by a responsible official as to the results of the required monitoring. This certification shall be signed by a responsible official, and shall contain the following language: "I certify, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete." [OAC 252:100-8-5(f) and OAC 252:100-8-6(c)(1)]

D. Any facility reporting noncompliance shall submit a schedule of compliance for emissions units or stationary sources that are not in compliance with all applicable requirements. This schedule shall include a schedule of remedial measures, including an enforceable sequence of actions with milestones, leading to compliance with any applicable requirements for which the emissions unit or stationary source is in noncompliance. This compliance schedule shall resemble and be at least as stringent as that contained in any judicial consent decree or administrative order to which the emissions unit or stationary source is subject. Any such schedule of compliance shall be supplemental to, and shall not sanction noncompliance with, the applicable requirements on which it is based, except that a compliance plan shall not be required for any noncompliance condition which is corrected within 24 hours of discovery.
[OAC 252:100-8-5(e)(8)(B) and OAC 252:100-8-6(c)(3)]

SECTION V. REQUIREMENTS THAT BECOME APPLICABLE DURING THE PERMIT TERM

The permittee shall comply with any additional requirements that become effective during the permit term and that are applicable to the facility. Compliance with all new requirements shall be certified in the next annual certification. [OAC 252:100-8-6(c)(6)]

SECTION VI. PERMIT SHIELD

A. Compliance with the terms and conditions of this permit (including terms and conditions established for alternate operating scenarios, emissions trading, and emissions averaging, but excluding terms and conditions for which the permit shield is expressly prohibited under OAC 252:100-8) shall be deemed compliance with the applicable requirements identified and included in this permit. [OAC 252:100-8-6(d)(1)]

B. Those requirements that are applicable are listed in the Standard Conditions and the Specific Conditions of this permit. Those requirements that the applicant requested be determined as not applicable are summarized in the Specific Conditions of this permit. [OAC 252:100-8-6(d)(2)]

SECTION VII. ANNUAL EMISSIONS INVENTORY & FEE PAYMENT

The permittee shall file with the AQD an annual emission inventory and shall pay annual fees based on emissions inventories. The methods used to calculate emissions for inventory purposes shall be based on the best available information accepted by AQD.
[OAC 252:100-5-2.1, OAC 252:100-5-2.2, and OAC 252:100-8-6(a)(8)]

SECTION VIII. TERM OF PERMIT

A. Unless specified otherwise, the term of an operating permit shall be five years from the date of issuance. [OAC 252:100-8-6(a)(2)(A)]

B. A source's right to operate shall terminate upon the expiration of its permit unless a timely and complete renewal application has been submitted at least 180 days before the date of expiration. [OAC 252:100-8-7.1(d)(1)]

C. A duly issued construction permit or authorization to construct or modify will terminate and become null and void (unless extended as provided in OAC 252:100-8-1.4(b)) if the construction is not commenced within 18 months after the date the permit or authorization was issued, or if work is suspended for more than 18 months after it is commenced. [OAC 252:100-8-1.4(a)]

D. The recipient of a construction permit shall apply for a permit to operate (or modified operating permit) within 180 days following the first day of operation. [OAC 252:100-8-4(b)(5)]

SECTION IX. SEVERABILITY

The provisions of this permit are severable and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.
[OAC 252:100-8-6 (a)(6)]

SECTION X. PROPERTY RIGHTS

A. This permit does not convey any property rights of any sort, or any exclusive privilege.
[OAC 252:100-8-6(a)(7)(D)]

B. This permit shall not be considered in any manner affecting the title of the premises upon which the equipment is located and does not release the permittee from any liability for damage to persons or property caused by or resulting from the maintenance or operation of the equipment for which the permit is issued. [OAC 252:100-8-6(c)(6)]

SECTION XI. DUTY TO PROVIDE INFORMATION

A. The permittee shall furnish to the DEQ, upon receipt of a written request and within sixty (60) days of the request unless the DEQ specifies another time period, any information that the DEQ may request to determine whether cause exists for modifying, reopening, revoking,

reissuing, terminating the permit or to determine compliance with the permit. Upon request, the permittee shall also furnish to the DEQ copies of records required to be kept by the permit.
[OAC 252:100-8-6(a)(7)(E)]

B. The permittee may make a claim of confidentiality for any information or records submitted pursuant to 27A O.S. § 2-5-105(18). Confidential information shall be clearly labeled as such and shall be separable from the main body of the document such as in an attachment.
[OAC 252:100-8-6(a)(7)(E)]

C. Notification to the AQD of the sale or transfer of ownership of this facility is required and shall be made in writing within thirty (30) days after such sale or transfer.
[Oklahoma Clean Air Act, 27A O.S. § 2-5-112(G)]

SECTION XII. REOPENING, MODIFICATION & REVOCATION

A. The permit may be modified, revoked, reopened and reissued, or terminated for cause. Except as provided for minor permit modifications, the filing of a request by the permittee for a permit modification, revocation and reissuance, termination, notification of planned changes, or anticipated noncompliance does not stay any permit condition.
[OAC 252:100-8-6(a)(7)(C) and OAC 252:100-8-7.2(b)]

B. The DEQ will reopen and revise or revoke this permit prior to the expiration date in the following circumstances: [OAC 252:100-8-7.3 and OAC 252:100-8-7.4(a)(2)]

(1) Additional requirements under the Clean Air Act become applicable to a major source category three or more years prior to the expiration date of this permit. No such reopening is required if the effective date of the requirement is later than the expiration date of this permit.
(2) The DEQ or the EPA determines that this permit contains a material mistake or that the permit must be revised or revoked to assure compliance with the applicable requirements.
(3) The DEQ or the EPA determines that inaccurate information was used in establishing the emission standards, limitations, or other conditions of this permit. The DEQ may revoke and not reissue this permit if it determines that the permittee has submitted false or misleading information to the DEQ.
(4) DEQ determines that the permit should be amended under the discretionary reopening provisions of OAC 252:100-8-7.3(b).

C. The permit may be reopened for cause by EPA, pursuant to the provisions of OAC 100-8-7.3(d). [OAC 100-8-7.3(d)]

D. The permittee shall notify AQD before making changes other than those described in Section XVIII (Operational Flexibility), those qualifying for administrative permit amendments, or those defined as an Insignificant Activity (Section XVI) or Trivial Activity (Section XVII). The notification should include any changes which may alter the status of a "grandfathered source," as defined under AQD rules. Such changes may require a permit modification.
[OAC 252:100-8-7.2(b) and OAC 252:100-5-1.1]

E. Activities that will result in air emissions that exceed the trivial/insignificant levels and that are not specifically approved by this permit are prohibited. [OAC 252:100-8-6(c)(6)]

SECTION XIII. INSPECTION & ENTRY

A. Upon presentation of credentials and other documents as may be required by law, the permittee shall allow authorized regulatory officials to perform the following (subject to the permittee's right to seek confidential treatment pursuant to 27A O.S. Supp. 1998, § 2-5-105(17) for confidential information submitted to or obtained by the DEQ under this section):

(1) enter upon the permittee's premises during reasonable/normal working hours where a source is located or emissions-related activity is conducted, or where records must be kept under the conditions of the permit;
(2) have access to and copy, at reasonable times, any records that must be kept under the conditions of the permit;
(3) inspect, at reasonable times and using reasonable safety practices, any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under the permit; and
(4) as authorized by the Oklahoma Clean Air Act, sample or monitor at reasonable times substances or parameters for the purpose of assuring compliance with the permit.

[OAC 252:100-8-6(c)(2)]

SECTION XIV. EMERGENCIES

A. Any exceedance resulting from an emergency shall be reported to AQD promptly but no later than 4:30 p.m. on the next working day after the permittee first becomes aware of the exceedance. This notice shall contain a description of the emergency, the probable cause of the exceedance, any steps taken to mitigate emissions, and corrective actions taken.

[OAC 252:100-8-6 (a)(3)(C)(iii)(I) and (IV)]

B. Any exceedance that poses an imminent and substantial danger to public health, safety, or the environment shall be reported to AQD as soon as is practicable; but under no circumstance shall notification be more than 24 hours after the exceedance. [OAC 252:100-8-6(a)(3)(C)(iii)(II)]

C. An "emergency" means any situation arising from sudden and reasonably unforeseeable events beyond the control of the source, including acts of God, which situation requires immediate corrective action to restore normal operation, and that causes the source to exceed a technology-based emission limitation under this permit, due to unavoidable increases in emissions attributable to the emergency. An emergency shall not include noncompliance to the extent caused by improperly designed equipment, lack of preventive maintenance, careless or improper operation, or operator error. [OAC 252:100-8-2]

D. The affirmative defense of emergency shall be demonstrated through properly signed, contemporaneous operating logs or other relevant evidence that: [OAC 252:100-8-6 (e)(2)]

(1) an emergency occurred and the permittee can identify the cause or causes of the emergency;

(2) the permitted facility was at the time being properly operated;
(3) during the period of the emergency the permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards or other requirements in this permit.

E. In any enforcement proceeding, the permittee seeking to establish the occurrence of an emergency shall have the burden of proof. [OAC 252:100-8-6(e)(3)]

F. Every written report or document submitted under this section shall be certified as required by Section III (Monitoring, Testing, Recordkeeping & Reporting), Paragraph F.
[OAC 252:100-8-6(a)(3)(C)(iv)]

SECTION XV. RISK MANAGEMENT PLAN

The permittee, if subject to the provision of Section 112(r) of the Clean Air Act, shall develop and register with the appropriate agency a risk management plan by June 20, 1999, or the applicable effective date. [OAC 252:100-8-6(a)(4)]

SECTION XVI. INSIGNIFICANT ACTIVITIES

Except as otherwise prohibited or limited by this permit, the permittee is hereby authorized to operate individual emissions units that are either on the list in Appendix I to OAC Title 252, Chapter 100, or whose actual calendar year emissions do not exceed any of the limits below. Any activity to which a State or Federal applicable requirement applies is not insignificant even if it meets the criteria below or is included on the insignificant activities list.

(1) 5 tons per year of any one criteria pollutant.
(2) 2 tons per year for any one hazardous air pollutant (HAP) or 5 tons per year for an aggregate of two or more HAP's, or 20 percent of any threshold less than 10 tons per year for single HAP that the EPA may establish by rule.
[OAC 252:100-8-2 and OAC 252:100, Appendix I]

SECTION XVII. TRIVIAL ACTIVITIES

Except as otherwise prohibited or limited by this permit, the permittee is hereby authorized to operate any individual or combination of air emissions units that are considered inconsequential and are on the list in Appendix J. Any activity to which a State or Federal applicable requirement applies is not trivial even if included on the trivial activities list.
[OAC 252:100-8-2 and OAC 252:100, Appendix J]

SECTION XVIII. OPERATIONAL FLEXIBILITY

A. A facility may implement any operating scenario allowed for in its Part 70 permit without the need for any permit revision or any notification to the DEQ (unless specified otherwise in the permit). When an operating scenario is changed, the permittee shall record in a log at the facility the scenario under which it is operating. [OAC 252:100-8-6(a)(10) and (f)(1)]

B. The permittee may make changes within the facility that:

(1) result in no net emissions increases,
(2) are not modifications under any provision of Title I of the federal Clean Air Act, and
(3) do not cause any hourly or annual permitted emission rate of any existing emissions unit to be exceeded;

provided that the facility provides the EPA and the DEQ with written notification as required below in advance of the proposed changes, which shall be a minimum of seven (7) days, or twenty four (24) hours for emergencies as defined in OAC 252:100-8-6 (e). The permittee, the DEQ, and the EPA shall attach each such notice to their copy of the permit. For each such change, the written notification required above shall include a brief description of the change within the permitted facility, the date on which the change will occur, any change in emissions, and any permit term or condition that is no longer applicable as a result of the change. The permit shield provided by this permit does not apply to any change made pursuant to this paragraph. [OAC 252:100-8-6(f)(2)]

SECTION XIX. OTHER APPLICABLE & STATE-ONLY REQUIREMENTS

A. The following applicable requirements and state-only requirements apply to the facility unless elsewhere covered by a more restrictive requirement:

(1) Open burning of refuse and other combustible material is prohibited except as authorized in the specific examples and under the conditions listed in the Open Burning Subchapter. [OAC 252:100-13]

(2) No particulate emissions from any fuel-burning equipment with a rated heat input of 10 MMBTUH or less shall exceed 0.6 lb/MMBTU. [OAC 252:100-19]

(3) For all emissions units not subject to an opacity limit promulgated under 40 C.F.R., Part 60, NSPS, no discharge of greater than 20% opacity is allowed except for: [OAC 252:100-25]

(a) Short-term occurrences which consist of not more than one six-minute period in any consecutive 60 minutes, not to exceed three such periods in any consecutive 24 hours. In no case shall the average of any six-minute period exceed 60% opacity;
(b) Smoke resulting from fires covered by the exceptions outlined in OAC 252:100-13-7;
(c) An emission, where the presence of uncombined water is the only reason for failure to meet the requirements of OAC 252:100-25-3(a); or
(d) Smoke generated due to a malfunction in a facility, when the source of the fuel producing the smoke is not under the direct and immediate control of the facility and the immediate constriction of the fuel flow at the facility would produce a hazard to life and/or property.

(4) No visible fugitive dust emissions shall be discharged beyond the property line on which the emissions originate in such a manner as to damage or to interfere with the use of

adjacent properties, or cause air quality standards to be exceeded, or interfere with the maintenance of air quality standards. [OAC 252:100-29]

(5) No sulfur oxide emissions from new gas-fired fuel-burning equipment shall exceed 0.2 lb/MMBTU. No existing source shall exceed the listed ambient air standards for sulfur dioxide. [OAC 252:100-31]

(6) Volatile Organic Compound (VOC) storage tanks built after December 28, 1974, and with a capacity of 400 gallons or more storing a liquid with a vapor pressure of 1.5 psia or greater under actual conditions shall be equipped with a permanent submerged fill pipe or with a vapor-recovery system. [OAC 252:100-37-15(b)]

(7) All fuel-burning equipment shall at all times be properly operated and maintained in a manner that will minimize emissions of VOCs. [OAC 252:100-37-36]

SECTION XX. STRATOSPHERIC OZONE PROTECTION

A. The permittee shall comply with the following standards for production and consumption of ozone-depleting substances: [40 CFR 82, Subpart A]

(1) Persons producing, importing, or placing an order for production or importation of certain class I and class II substances, HCFC-22, or HCFC-141b shall be subject to the requirements of §82.4;
(2) Producers, importers, exporters, purchasers, and persons who transform or destroy certain class I and class II substances, HCFC-22, or HCFC-141b are subject to the recordkeeping requirements at §82.13; and
(3) Class I substances (listed at Appendix A to Subpart A) include certain CFCs, Halons, HBFCs, carbon tetrachloride, trichloroethane (methyl chloroform), and bromomethane (Methyl Bromide). Class II substances (listed at Appendix B to Subpart A) include HCFCs.

B. If the permittee performs a service on motor (fleet) vehicles when this service involves an ozone-depleting substance refrigerant (or regulated substitute substance) in the motor vehicle air conditioner (MVAC), the permittee is subject to all applicable requirements. Note: The term "motor vehicle" as used in Subpart B does not include a vehicle in which final assembly of the vehicle has not been completed. The term "MVAC" as used in Subpart B does not include the air-tight sealed refrigeration system used as refrigerated cargo, or the system used on passenger buses using HCFC-22 refrigerant. [40 CFR 82, Subpart B]

C. The permittee shall comply with the following standards for recycling and emissions reduction except as provided for MVACs in Subpart B: [40 CFR 82, Subpart F]

(1) Persons opening appliances for maintenance, service, repair, or disposal must comply with the required practices pursuant to § 82.156;
(2) Equipment used during the maintenance, service, repair, or disposal of appliances must comply with the standards for recycling and recovery equipment pursuant to § 82.158;
(3) Persons performing maintenance, service, repair, or disposal of appliances must be

certified by an approved technician certification program pursuant to § 82.161;
(4) Persons disposing of small appliances, MVACs, and MVAC-like appliances must comply with record-keeping requirements pursuant to § 82.166;
(5) Persons owning commercial or industrial process refrigeration equipment must comply with leak repair requirements pursuant to § 82.158; and
(6) Owners/operators of appliances normally containing 50 or more pounds of refrigerant must keep records of refrigerant purchased and added to such appliances pursuant to § 82.166.

SECTION XXI. TITLE V APPROVAL LANGUAGE

A. DEQ wishes to reduce the time and work associated with permit review and, wherever it is not inconsistent with Federal requirements, to provide for incorporation of requirements established through construction permitting into the Source's Title V permit without causing redundant review. Requirements from construction permits may be incorporated into the Title V permit through the administrative amendment process set forth in OAC 252:100-8-7.2(a) only if the following procedures are followed:

(1) The construction permit goes out for a 30-day public notice and comment using the procedures set forth in 40 C.F.R. § 70.7(h)(1). This public notice shall include notice to the public that this permit is subject to EPA review, EPA objection, and petition to EPA, as provided by 40 C.F.R. § 70.8; that the requirements of the construction permit will be incorporated into the Title V permit through the administrative amendment process; that the public will not receive another opportunity to provide comments when the requirements are incorporated into the Title V permit; and that EPA review, EPA objection, and petitions to EPA will not be available to the public when requirements from the construction permit are incorporated into the Title V permit.
(2) A copy of the construction permit application is sent to EPA, as provided by 40 CFR § 70.8(a)(1).
(3) A copy of the draft construction permit is sent to any affected State, as provided by 40 C.F.R. § 70.8(b).
(4) A copy of the proposed construction permit is sent to EPA for a 45-day review period as provided by 40 C.F.R.§ 70.8(a) and (c).
(5) The DEQ complies with 40 C.F.R. § 70.8(c) upon the written receipt within the 45-day comment period of any EPA objection to the construction permit. The DEQ shall not issue the permit until EPA's objections are resolved to the satisfaction of EPA.
(6) The DEQ complies with 40 C.F.R. § 70.8(d).
(7) A copy of the final construction permit is sent to EPA as provided by 40 CFR § 70.8(a).
(8) The DEQ shall not issue the proposed construction permit until any affected State and EPA have had an opportunity to review the proposed permit, as provided by these permit conditions.
(9) Any requirements of the construction permit may be reopened for cause after incorporation into the Title V permit by the administrative amendment process, by DEQ as provided in OAC 252:100-8-7.3(a), (b), and (c), and by EPA as provided in 40 C.F.R. § 70.7(f) and (g).

(10) The DEQ shall not issue the administrative permit amendment if performance tests fail to demonstrate that the source is operating in substantial compliance with all permit requirements.

B. To the extent that these conditions are not followed, the Title V permit must go through the Title V review process.

SECTION XXII. CREDIBLE EVIDENCE

For the purpose of submitting compliance certifications or establishing whether or not a person has violated or is in violation of any provision of the Oklahoma implementation plan, nothing shall preclude the use, including the exclusive use, of any credible evidence or information, relevant to whether a source would have been in compliance with applicable requirements if the appropriate performance or compliance test or procedure had been performed.

[OAC 252:100-43-6]